

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY															
DEPARTMENT OF INFORMATION TECHNOLOGY															
R16 CO-PO MATRIX															
I B. TECH. I SEM															
R161101	ENGLISH-I	CO1	identify the context, topic, and pieces of specific information from social or transactional dialogues spoken by native speakers of English (L3)												
		CO2	formulate sentences using proper grammatical structures and correct word forms and take notes while listening to a talk/lecture to answer questions (L3)												
		CO3	speak clearly on a specific topic using suitable discourse markers in informal discussions (L3)												
		CO4	write summaries based on global comprehension of reading/listening texts (L3)												
		CO5	produce a coherent paragraph interpreting a figure/graph/chart/table (L4)												
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
	CO1	-	-	-	-	-	-	-	-	2	3	-	1	-	-
	CO2	-	-	-	-	-	-	-	-	2	3	-	1	-	-
	CO3	-	-	-	-	-	-	-	-	2	3	-	1	-	-
	CO4	-	-	-	-	-	-	-	-	2	3	-	1	-	-
CO5	-	-	-	-	-	-	-	-	2	3	-	1	-	-	
Target									2	3		1			
R161102	MATHEMATICS-I	CO1	Understand the first order ordinary Differential equations and analyse their applications.												
		CO2	Classify and solve the higher order ordinary differential equations and its applications.												
		CO3	Apply Laplace transformations and Evaluate the improper integral												
		CO4	Remember partial differentiation and Compute extreme values.												
		CO5	Construct the Partial differential equations and Solve first order partial differential equations												
		CO6	Classify the nature of higher order partial differential equations												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	2	-	-	-	-	-	-	-	-	-	1	-	-
	CO2	3	2	-	-	-	-	-	-	-	-	-	1	-	-
	CO3	3	2	-	-	-	-	-	-	-	-	-	1	-	-
CO4	3	2	-	-	-	-	-	-	-	-	-	1	-	-	
CO5	3	2	-	-	-	-	-	-	-	-	-	1	-	-	
CO6	3	2	-	-	-	-	-	-	-	-	-	1	-	-	
Target	3	2										1			
R161109	Mathematics-II (Mathematical Methods)	CO1	Appropriate Numerical methods to find roots of algebraic & transcendental equations												
		CO2	Understand the interpolation and extrapolation techniques												
		CO3	Apply different numerical methods to Solve differential equations.												
		CO4	Interpret Fourier series analysis which is central to many applications in engineering apart .												
		CO5	Solving of Higher order Partial differential equations and their application												
		CO6	Apply Fourier transforms to Evaluate improper integrals												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	2	-	-	-	-	-	-	-	-	-	1	-	-
	CO2	3	2	-	-	-	-	-	-	-	-	-	1	-	-
	CO3	3	2	-	-	-	-	-	-	-	-	-	1	-	-
CO4	3	2	-	-	-	-	-	-	-	-	-	1	-	-	
CO5	3	2	-	-	-	-	-	-	-	-	-	1	-	-	
CO6	3	2	-	-	-	-	-	-	-	-	-	1	-	-	
Target	3	2										1			
R161104	Applied Physics	CO1	Students acquire the ability to apply knowledge of Interference concepts of light												
		CO2	Students acquire the ability to apply knowledge of Diffraction concepts of light.												
		CO3	Students will be able to understand the applications of Lasers.												
		CO4	Knowledge of EMW wave propagation and its applications will be gained.												
		CO5	Students will be able to develop scientific point of view in solving problems in Quantum mechanics.												
		CO6	Students will be able to design and analyse Laws and principles of Semiconductor Physics and conduct experiments.												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	2	-	-	-	-	-	-	-	-	-	1	-	-
	CO2	3	2	-	-	-	-	-	-	-	-	-	1	-	-
	CO3	3	2	-	-	-	-	-	-	-	-	-	1	-	-
CO4	3	2	-	-	-	-	-	-	-	-	-	1	-	-	
CO5	3	2	-	-	-	-	-	-	-	-	-	1	-	-	
CO6	3	2	-	-	-	-	-	-	-	-	-	1	-	-	
Target	3	2										1			

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R16 CO-PO MATRIX																	
R161119	Computer Programming Lab	CO1	Understand the basic terminology used in computer programming														
		CO2	Write, compile and debug programs in C language.														
		CO3	Use different data types in a computer program.														
		CO4	Design programs involving decision structures, loops and functions.														
		CO5	Understand the difference between call by value and call by reference														
		CO6	Understand the dynamics of memory by the use of pointers														
		CO7	Use different data structures and create/update basic data files.														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	3	1	1	1	2	-	-	-	-	-	-	-	-	-	-
		CO2	3	3	1	1	2	-	-	-	-	-	-	-	-	1	-
		CO3	3	2	3	2	2	-	-	-	-	-	-	-	-	2	-
		CO4	3	3	2	3	2	-	-	-	-	-	-	-	-	2	-
		CO5	3	3	2	2	3	-	-	-	-	-	-	-	-	2	-
		CO6	3	2	2	2	2	-	-	-	-	-	-	-	-	3	-
CO6	3	2	3	3	3	-	-	-	-	-	-	-	-	3	-		
Target	3	2.29	2	2	2.29									2.17			
I B. TECH. II SEM																	
R161201	English –II	CO1	To read and comprehend English stories and texts														
		CO2	To write effectively using appropriate format and transfer verbal information into nonverbal information														
		CO3	To improve listening skills particularly related to Technical English and speak in English without inhibition														
		CO4	To expand vocabulary range and use it effectively and grammatically for English communication														
		CO5	To improve life skills and core skills necessary for effective communication and critically respond in English to a real life situations														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	-	-	-	-	-	-	-	-	2	3	-	1	-	-	-
		CO2	-	-	-	-	-	-	-	-	2	3	-	1	-	-	-
		CO3	-	-	-	-	-	-	-	-	2	3	-	1	-	-	-
		CO4	-	-	-	-	-	-	-	-	2	3	-	1	-	-	-
		CO5	-	-	-	-	-	-	-	-	2	3	-	1	-	-	-
Target									2	3		1					
R161203	Mathematics-III	CO1	Solve the system of linear equations and Analyse their applications														
		CO2	Compute an Eigen values and eigen vectors.														
		CO3	Evaluate double and Triple integrals and Apply to find surface area and volumes of solids.														
		CO4	Compare definite integral with special functions														
		CO5	Differentiate the scalar and vector functions.														
		CO6	Understand line, surface and volume integrals and Establish vector integral theorems.														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	3	2	-	-	-	-	-	-	-	-	-	-	1	-	-
		CO2	3	2	-	-	-	-	-	-	-	-	-	-	1	-	-
		CO3	3	2	-	-	-	-	-	-	-	-	-	-	1	-	-
		CO4	3	2	-	-	-	-	-	-	-	-	-	-	1	-	-
CO5	3	2	-	-	-	-	-	-	-	-	-	-	1	-	-		
CO6	3	2	-	-	-	-	-	-	-	-	-	-	1	-	-		
Target	3	2											1				
R161211	Applied Chemistry	CO1	Able to explain about synthesis, physical and mechanical properties, compounding and reframing & fabrication of polymers, plastics and elastomers and Applications of fibre reinforced polymers along with conducting polymers														
		CO2	Recognize specific characteristic properties of fuels including calorific value determination , Ranking and Analysis of coal by proximate and ultimate methods														
		CO3	Understanding the principles, Construction and working of galvanic cells, electrode potentials, concentration cells , rechargeable batteries Apply the knowledge of electro chemistry to corrosion, distinguish various types of corrosions and able to solve corrosion problems														
		CO4	Discovery of advanced materials i.e. nanomaterials, liquid crystals, super conductors and Illustrate the applications of cleaner and greener synthetic methods adapt in industries for healthy living														
		CO5	Understanding the structures of solid crystalline structures, synthesis of ultra pure semiconductors, working of rectifiers and transistors, insulating materials, distinguish various ferro and ferromagnetic materials														
		CO6	Recognize non-conventional energy sources, construction & working of photovoltaic cell, design of hydropower plant, tidal power, geothermal energy, bio gas for green environment.														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	2	3	-	-	-	-	-	-	-	-	-	2	-	-	-
		CO2	3	3	-	-	-	-	-	-	-	-	2	2	-	-	-
		CO3	2	2	-	-	-	-	-	-	-	-	1	3	-	-	-
		CO4	3	2	-	-	-	-	-	-	-	-	1	3	-	-	-
CO5	2	1	-	-	-	-	-	-	-	-	1	1	-	-	-		
CO6	2	2	-	-	-	-	-	-	-	-	1	2	-	-	-		
Target	2.33	2.17									1.33	2.2					

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R16 CO-PO MATRIX																	
R161215	Object Oriented Programming through C++	CO1	Understand the basic terminology used in OOPs Concepts														
		CO2	Understand Scope rules, various members functions of Classes & Objects.														
		CO3	Analyze the behaviour of OOPS features like Polymorphism & Inheritance.														
		CO4	Analyze role of virtual functions & pointers														
		CO5	Understand the behaviour of Templates & Exceptions														
		CO6	Understand STL library.														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1		1	3	2	--	--	--	--	--	--	--	--	1	2	2
		CO2		1	2	3	1	--	--	--	--	--	--	--	--	2	2
		CO3		1	2	2	--	--	--	--	--	--	--	--	2	2	2
		CO4		1	3	3	--	--	--	--	--	--	--	--	2	2	2
		CO5		--	3	3	1	--	--	--	--	--	--	--	1	2	2
		CO6		--	3	3	3	--	--	--	--	--	--	--	--	2	2
Target		1	2.67	2.67	1.67								1.5	2	2		
R161212	Environmental Studies	CO1	Able to Understand The concepts of the ecosystem														
		CO2	Able to Understand The natural resources and their importance														
		CO3	Able to learn The biodiversity of India and the threats to biodiversity ,and Applyconservation practices														
		CO4	Able to learn Various attributes of the pollution and their impacts														
		CO5	Able to Understand Social issues both rural and urban environment														
		CO6	Able to Understand About environmental Impact assessment and Evaluate the stages involved in EIA														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1		-	-	-	-	-	-	3	-	-	-	-	3	-	-
		CO2		-	-	3	-	-	-	3	-	-	-	-	3	-	-
		CO3		-	-	-	-	-	-	3	-	-	-	-	3	-	-
		CO4		-	-	3	-	-	-	3	-	-	-	-	3	-	-
		CO5		-	-	3	-	-	-	3	-	-	-	-	3	-	-
		CO6		-	-	3	-	-	-	3	-	-	-	-	3	-	-
Target				3				3					3				
R161216	Engineering Mechanics	CO1	To understand the concepts of force and friction, direction and its application.														
		CO2	To understand the application of free body diagrams, solution to problems using graphical methods and law of triangle forces.														
		CO3	To understand the concepts of centroid and Centre of gravity.														
		CO4	To understand the concepts of moment of inertia and polar moment of inertia including transfer														
		CO5	To understand the motion of a particle in straight line and in curvilinear path, its velocity and acceleration computation and methods of representing plane motion.														
		CO6	To understand the concepts of work, energy and particle motion.														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1		3	2	-	-	-	-	-	-	-	-	-	2	-	-
		CO2		3	2	1	-	-	-	-	-	-	-	-	2	-	-
		CO3		3	2	-	-	-	-	-	-	-	-	-	2	-	-
		CO4		3	2	1	-	-	-	-	-	-	-	-	2	-	-
		CO5		3	2	-	-	-	-	-	-	-	-	-	2	-	-
		CO6		3	2	1	-	-	-	-	-	-	-	-	2	-	-
Target		3	2	1									2				
R161227	Applied / Engineering Chemistry Laboratory	CO1	Estimate the amount of metal ions present in different solutions (L5)														
		CO2	Analyse the quality parameters of water (L4)														
		CO3	Determine the strength of different solutions by using different instrumentation techniques (L5)														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1		-	3	2	-	-	-	-	1	2	-	-	2	-	-
		CO2		-	2	3	-	-	-	-	1	3	-	-	1	-	-
		CO3		-	1	2	-	-	-	-	1	2	-	-	1	-	-
Target			2	2.33					1	2.3			1.33				

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY																
DEPARTMENT OF INFORMATION TECHNOLOGY																
R16 CO-PO MATRIX																
R161221	English - Communication Skills Lab - 2	CO1	prioritize information from reading texts after selecting relevant and useful points and paraphrase short academic texts using suitable strategies and conventions (L3)													
		CO2	make formal structured presentations on academic topics using PPT slides with relevant graphical elements (L3)													
		CO3	participate in group discussions using appropriate conventions and language strategies (L3)													
		CO4	prepare a CV with a cover letter to seek internship/ job (L2)													
		CO5	collaborate with a partner to make presentations and Project Reports (L2)													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		CO2	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		CO3	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		CO4	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		CO5	-	-	-	-	-	-	-	-	2	3	-	1	-	-
Target									2	3		1				
R161229	Object Oriented Programming Lab	CO1	Demonstrate the basic Problem solving techniques through C++.													
		CO2	Implement polymorphism, inheritance & virtual functions.													
		CO3	Apply exceptions and standard template libraries.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	1	2	2	2	-	-	-	-	-	-	-	2	2	-
		CO2	1	2	2	2	-	-	-	-	-	-	-	2	2	-
CO3	-	2	2	2	-	-	-	-	-	-	-	2	2	-		
Target	1	2	2	2								2	2			
2-1																
R1621051	Statistics with R Programming	CO1	Infers the concepts of Vectors and Lists for programming.													
		CO2	Extends and generalizes functions & pointers.													
		CO3	Demonstrates the application of statistics over data sets.													
		CO4	Discriminates the statistic results graphically.													
		CO5	Differentiates probability distribution functions.													
		CO6	Differentiates linear models.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	2	3	-	-	-	-	-	-	-	-	2	2	-	-
		CO2	2	3	2	-	-	-	-	-	-	-	2	2	2	1
		CO3	2	3	3	-	-	-	-	-	-	-	2	2	3	2
		CO4	2	3	3	-	-	-	-	-	-	2	2	2	2	2
CO5	2	3	3	2	-	-	-	-	2	2	2	2	3	2		
CO6	2	3	3	2	-	-	-	-	2	2	2	2	2	2		
Target	2	3	2.8	2					2	2	2	2	2.4	1.8		
R1621052	Mathematical Foundations of Computer Science	CO1	Define the fundamental discrete mathematical structures.													
		CO2	Apply logical reasoning to solve a variety of problems.													
		CO3	Understand the functions concepts and distinguish different types of functions.													
		CO4	Demonstrate the ability to solve problems using counting techniques and combinatory in the context of													
		CO5	Exposure of Graphs, their representations, and solving problems using Graph Theory.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	2	-	-	-	-	-	1	-	-	-	-	-	2	1
		CO2	3	3	2	-	-	-	-	-	2	-	-	-	2	2
		CO3	3	2	2	1	-	-	2	-	-	-	-	-	3	3
		CO4	-	1	-	2	-	-	-	-	-	-	-	-	1	-
		CO5	3	2	2	-	-	-	3	-	3	-	-	-	-	-
Target	2.75	2	2	1.5			2		2.5				2	2		

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DEPARTMENT OF INFORMATION TECHNOLOGY																
R16 CO-PO MATRIX																
R1621053	Digital Logic Design	CO1	Understand the basics of Digital electronics, number systems and digital codes													
		CO2	Understand Boolean algebra to analyse the logic functions using k maps.													
		CO3	Analyze the design procedure for different combinational circuits.													
		CO4	Understand different synchronous sequential circuits and state machines.													
		CO5	Design different types of registers and counters.													
		CO6	Understand and design different programmable logic devices.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	-	-	-	-	-	-	-	-	-	-	-	-	3	1
	CO2	2	2	-	-	-	-	-	-	-	-	-	-	-	2	1
	CO3	2	2	3	-	-	-	-	-	-	-	-	-	-	3	2
	CO4	2	2	-	-	-	-	-	-	-	-	-	-	-	2	1
	CO5	2	-	3	-	-	-	-	-	-	-	-	-	-	2	1
CO6	2	-	2	-	-	-	-	-	-	-	-	2	2	2	1	
Target	2.17	2	2.67									2	2.33	1.17		
R1621054	Python Programming	CO1	Comprehends how software easily to be build right out of the box.													
		CO2	Demonstrates the use of an interpreted language for problem solving through control statements including loops and conditionals.													
		CO3	Practice with data structures for quick programming solutions.													
		CO4	Demonstrates software building for real needs by breaking out code into reusable functions and modules.													
		CO5	Ensure and to show the software reliability through exception handling.													
		CO6	Use of python standard library for problem solving and Identifies the necessity of testing software.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	-	-	3	2	2	-	-	-	2	-	-	-	-	2	-
	CO2	2	2	2	2	2	-	-	-	2	-	-	-	-	2	-
	CO3	2	2	2	2	3	-	-	-	2	-	-	-	-	2	-
	CO4	2	1	2	2	2	-	-	-	3	2	-	-	-	1	1
	CO5	-	3	3	2	3	-	-	-	3	2	-	-	-	2	1
CO6	-	2	2	3	3	-	-	-	2	-	-	-	-	2	1	
Target	2	2	2.33	2.17	2.5				2.3	2				1.83	1	
R1621055	Data Structures through C++	CO1	Able to distinguish between procedures and object oriented programming and implement array data structures													
		CO2	Able to understand and implement Stack and Queue data structure													
		CO3	Able to understand and implement linked list data structure.													
		CO4	Able to incorporate data structures into the applications such as binary search trees, AVL, and B Trees.													
		CO5	Able to implement and apply Graph data structures.													
		CO6	Able to illustrate various sorting techniques.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	1	1	1	2								3	3	2
	CO2	3	2	1	1	2								2	3	3
	CO3	3	2		1								3		3	2
	CO4	2	3	2	3	2								2	3	3
	CO5	3	3	2	3	2							3	3	3	2
CO6	3	3	2	3	2								3	3	3	
Target	2.8	2.3	1.6	2.2	1.83							3	2.6	3	2.7	
R1621	Software Engineering	CO1	Infer the basic software engineering methods , processes, process models and their applications.													
		CO2	Apply the knowledge of requirements gathering methods to create an SRS document for a defined problem.													
		CO3	Comprehend various Software Design, UI design Techniques and apply that knowledge for a defined problem.													
		CO4	Analysis and implement concepts such as modularity, coding principles, Testing strategies and coding standards.													
		CO5	Infer the Software Reliability, Quality and CASE tools by practicing Ethics & Team Work.													
		CO6	Infer the maintenance process models and software reuse..													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	-	-	3	2	2	-	-	-	2	-	-	-	-	2	-
	CO2	2	2	2	2	2	-	-	-	2	-	-	-	-	2	-
	CO3	2	2	2	2	3	-	-	-	2	-	-	-	-	2	-
	CO4	2	1	2	2	2	-	-	-	3	2	-	-	-	1	1
	CO5	-	3	3	2	3	-	-	-	3	2	-	-	-	2	1
CO6	-	2	2	3	3	-	-	-	2	-	-	-	-	2	1	
Target	2	2	2.33	2.17	2.5				2.3	2				1.83	1	

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY															
DEPARTMENT OF INFORMATION TECHNOLOGY															
R16 CO-PO MATRIX															
R1621057	Data Structures through C++ Lab	CO1	Able to implement Array data structures and its applications												
		CO2	Able to implement stacks and Queue data structures and its applications												
		CO3	Able to implement Linked List and its applications												
		CO4	Able to implement Tree data structures												
		CO5	Able to implement Graph data structures and its applications												
		CO6	Able to implement various sorting techniques.												
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
	CO1	3	1	1	1	2							3	3	2
	CO2	3	2	1	1	2							2	3	3
	CO3	3	2			1						3		3	2
	CO4	2	3	2	3	2							2	3	3
	CO5	3	3	2	3	2						3	3	3	2
	CO6	3	3	2	3	2							3	3	3
Target	2.8	2.3	1.6	2.2	1.8						3	2.6	3	2.5	
R1622051	Python Programming Lab	CO1	Comprehend how software can easily be build right out of the box.												
		CO2	Demonstrate the use of an interpreted language for problem solving through control statements including loops and conditionals.												
		CO3	Apply data structures for quick programming solutions.												
		CO4	Demonstrate software building for real needs by breaking out code into reusable functions and modules.												
		CO5	Produce software reliability through exception handling.												
		CO6	Use of python standard library for problem solving and Identifies the necessity of testing software.												
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
	CO1	-	-	3	2	2	-	-	-	2	-	-	-	2	-
	CO2	2	2	2	2	2	-	-	-	2	-	-	-	2	-
	CO3	2	2	2	2	3	-	-	-	2	-	-	-	2	-
	CO4	2	1	2	2	2	-	-	-	3	2	-	-	1	1
	CO5	-	3	3	2	3	-	-	-	3	2	-	-	2	1
	CO6	-	2	2	3	3	-	-	-	2	-	-	-	2	1
Target	2	2	2.33	2.17	2.5				2.3	2			1.83	1	
2-2															
R1622052	Computer Graphics	CO1	Understand, transform and analyze 2D Objects by learning output primitives												
		CO2	Represent 3D Object representation models by learning various visualization techniques												
		CO3	Develop programs in OPENGL by using apt functions for efficacy in Computer Graphics 2D/3D and Animation												
		CO4	Perform Rendering of 2D/3D Objects by learning about shading, texture mapping techniques and drawing shadows												
		CO5	Design complicated Real World Scenes by learning Iterated Function Systems for implementing Fractals												
		CO6	Apply 3D Solid Geometric Techniques for representing 3D objects												
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
	CO1	1		2	2						1		1	1	1
	CO2				3									2	
	CO3			3	3									3	
	CO4	1	1	3										2	
	CO5			3	2									3	
	CO6	1	3	3											
Target	1	2	2.8	2.5						1		1	2.2	1	
R1622052	Java Programming	CO1	Able to understand the concept and underlying principles of OOP.												
		CO2	Able to illustrate simple java primitives and problem solving using OOP concept.												
		CO3	Able to use packages, interfaces, exceptions.												
		CO4	Able to analyze the behavior of Threads and I/O Stream in java.												
		CO5	Able to creation of events and applications using Applets.												
		CO6	Able to construct simple GUI applications using Frames & JFrames.												
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
	CO1	3	2	-	-	-	-	-	-	-	-	-	2	3	2
	CO2	3	3	3	-	-	-	-	-	-	-	-	2	3	3
	CO3	2	3	3	2	-	-	-	-	-	-	-	2	3	2
	CO4	2	3	3	3	-	-	-	-	-	-	-	2	3	3
	CO5	2	3	3	3	-	-	-	-	2	-	2	2	3	2
	CO6	2	3	3	3	-	-	-	-	2	-	2	2	3	3
Target	3	2	-	-	-	-	-	-	-	-	-	2	3	2	

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY																
DEPARTMENT OF INFORMATION TECHNOLOGY																
R16 CO-PO MATRIX																
R16Z20	E-Commerce	CO1	Identify major categories and trends of e-commerce applications													
		CO2	Define various electronic payment types and associated security risks and the ways to protect against them													
		CO3	Identify the essential processes of an e-commerce system.													
		CO4	Identify several factors and web store requirements needed to succeed in e-commerce and the various marketing strategies for an online business.													
		CO5	Discuss the benefits and trade-offs of various e-commerce clicks and bricksalternatives.													
		CO6	Understand the main technologies behind e-commerce systems and how these technologies interact													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1		2	2										1	1
		CO2			3	1									2	
		CO3	2	2											2	
		CO4			3		2								2	1
		CO5			2			1							2	
		CO6			3	1									2	
		Target	2	2	2.6	1	2	2							1.8	1
R16Z2054	Computer Organization	CO1	Understand the modern computers with their processing units and also performance measurement of the computer system.													
		CO2	Understand the fundamentals of different addressing modes and instruction sets.													
		CO3	Compare different processors and their instruction types and addressing modes respectively.													
		CO4	Analyze the concepts of interfacing the I/O devices using different types of buses.													
		CO5	Understand the concepts of memory systems and their mapping functions.													
		CO6	Analyze and design processing unit and micro programmed control unit.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	1	1	1	-	-	2	2	-	2	2	2	-	2	2
		CO2	3	2	3	2	-	2	2	-	2	2	3	3	2	2
		CO3	3	1	2		-	3	2	-	2	2	2	-	2	3
		CO4	1	1	2	1	-	2	2	-	2	2	2	1	1	2
		CO5	-	-	1	-	-	3	2	-	2	2	2	3	1	1
		CO6	1	2	3	3	-	2	2	-	2	2	2	1	1	2
		Target	1.8	1.4	2	2		2.33	2		2	2	2.17	2	1.5	2
R16Z20	Object Oriented Analysis and Design using UML	CO1	Able to understand the different complex systems.													
		CO2	Able to identify solutions to the complex problems using object oriented approach													
		CO3	Able to describe notations of UML, Representation of classes and objects and their relationships													
		CO4	Able to analyze the basic behavioural modelling through interaction diagrams, use case diagrams and Activity diagrams.													
		CO5	Able to evaluate about advanced behavioural modelling through state chart diagrams													
		CO6	Able to produce architectural modelling of complex systems through component and deployment diagrams													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1		3		3									3	2
		CO2		2	3										3	1
		CO3	3												2	1
		CO4	3	2											3	2
		CO5					2								3	2
		CO6	2		3		2								3	2
		Target	2.6	2.3	3	3	2								2.6	2.5
R16Z2056	Principles of Programming Languages	CO1	Describe syntax and semantics of programming languages.													
		CO2	Comprehendvarious programming language constructs.													
		CO3	Implement Subprograms in various programming languages.													
		CO4	Apply Object oriented programming concepts.													
		CO5	Implement Functional Programming.													
		CO6	Interpret Logical Programming.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	2	2	2	2	-	-	-	-	-	-	-	2	2	2
		CO2	1	-	2	1	-	-	-	-	-	-	-	2	2	2
		CO3	2	2	1	1	-	-	-	-	-	-	-	2	2	3
		CO4	2	1	2	2	-	-	-	-	-	-	-	2	1	3
		CO5	2	2	2	2	-	-	-	-	-	-	-	2	2	2
		CO6	3	3	2	2	-	-	-	-	-	-	-	2	2	3
		Target	2	2	1.83	1.67								2	1.83	2.5

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY
DEPARTMENT OF INFORMATION TECHNOLOGY
R16 CO-PO MATRIX

R1622057	Unified Modeling Languages Lab	CO1	Understanding the industry standard process including Rational unified process and Agile process.															
		CO2	Design the software development process that fits the complexity of solving projects															
		CO3	Will be able to differentiate how the object-oriented approach differs from the Traditional approach to systems analysis and design.															
		CO4	Recognize the difference between various object relationships: inheritance, association, whole-part, and dependency relationships.															
		CO5	Construct various UML models (including use case diagrams, class diagrams, interaction diagrams, state chart diagrams, activity diagrams, and implementation diagrams) using the appropriate notation for different case studies.															
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
		CO1	1	2	1	1	1	3	1	-	2	1	2	-	1	1		
		CO2	-	2	3	1	2	2	1	-	1	2	3	-	-	-		
		CO3	1	1	2	2	1	3	3	-	-	2	3	-	2	1		
		CO4	-	-	1	-	-	-	-	-	2	-	-	-	1	-		
		CO5	-	1	2	-	-	2	-	-	1	1	-	-	1	1		
		Target	1	2.1	2	1.7	2	3	2.5	2	2	2.5			1.75	1		
		R1622058	Java Programming Lab	CO1	Describe the installation process of java application.													
				CO2	Demonstrate how to write, compile and execute the java programs.													
				CO3	Develop the knowledge of OOP concepts.													
CO4	Use of interfaces, threads and exceptions.																	
CO5	Use of Applets and events.																	
CO6	Create a simple GUI based application.																	
	PO1			PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
CO1	3			2	-	-	-	-	-	-	-	-	-	2	3	2		
CO2	3			3	3	-	-	-	-	-	-	-	-	2	3	3		
CO3	2			3	3	2	-	-	-	-	-	-	-	2	3	2		
CO4	2			3	3	3	-	-	-	-	-	-	-	2	3	3		
CO5	2			3	3	3	-	-	-	-	2	-	2	2	3	2		
CO6	2			3	3	3	-	-	-	-	2	-	2	2	3	3		
Target	3			2	-	-	-	-	-	-	-	-	-	2	3	2		
3-1																		
R1631051	Human Computer Interaction	CO1	infer the capabilities of both humans and computers from the viewpoint of human information processing.															
		CO2	Analyze typical human-computer interaction (HCI) models, styles, and various historic HCI paradigms.															
		CO3	apply an interactive design process and universal design principles to designing HCI systems.															
		CO4	Choose and implement HCI design principles, standards and guidelines.															
		CO5	analyze the user models, user support, socio-organizational issues, and stakeholder requirements of HCI systems.															
		CO6	infer tasks and dialogs of relevant HCI systems based on task analysis and dialog design.															
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
		CO1	2												1	1		
		CO2	2	1	1			2	1						1	0		
		CO3	2	2	2			1							1	0		
		CO4	2												1	1		
		CO5	2	1	1			2	1						1	1		
		CO6	2	1	1			1							1	1		
		Target	2	1.5	1.5			2.5	1						1	1		
		R1631052	Unix and Shell Programming	CO1	Infer the importance of Unix operating system by learning its history, salient features and using basic utilities.													
CO2	Use File and Directory related utilities aptly for operations, with a strong understanding on UNIX file system.																	
CO3	Implement various features of Shell for navigation, execution and customization as per requirements.																	
CO4	Create/develop scripts using grep, sed and awk to produce the desired effects in data processing.																	
CO5	Create shell scripts using the syntactic constructs of shell for producing the desired effects.																	
CO6	Use process management features of UNIX for job control at shell level.																	
	PO1			PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
CO1	1			1	1	-	1	-	-	-	-	-	-	-	1	1		
CO2	-			2	-	-	1	-	-	-	-	-	-	-	2	2		
CO3	-			3	3	3	2	-	-	-	1	-	-	-	3	2		
CO4	1			3	3	3	2	-	-	-	-	-	-	-	3	2		
CO5	1			3	3	3	2	-	-	-	-	-	-	-	3	2		
CO6	2			2	2	-	-	-	-	-	-	-	-	-	2	1		
Target	2			2.7	3	3	2.7				1				2.6	2.3		

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY
DEPARTMENT OF INFORMATION TECHNOLOGY
R16 CO-PO MATRIX

R1631057	Unix and Operating Systems Lab	CO1	Simulation of CPU Scheduling algorithms(FCTS, Round Robin, SJF, Priority) (Analyze)														
		CO2	Implementation of different file and memory management system calls. (Analyze)														
		CO3	Simulation of Banker's and page replacement algorithms(Analyze)														
		CO4	To understand basic system environment of LINUX operating system.(Understand)														
		CO5	Construct chained commands using grep, sed, awk and other data processing utilities that perform desired tasks (Implement)														
		CO6	Write shell scripts that support the OS Administration (Construct)														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	3	2	2	-	-	-	-	-	-	-	-	-	-	2	3
		CO2	2		2	-	-	-	-	-	-	-	-	-	-	-	-
		CO3	-	1	-	-	-	-	-	-	-	-	-	-	-	2	-
		CO4	2	1	3	-	-	-	-	-	-	-	-	-	-	-	3
		CO5	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
		CO6	-	2	2	-	-	-	-	-	-	-	-	-	-	-	2
		Target	2.1	2	2.1											2	2
R1631058	Database Management System Lab	CO1	To create database for user (Creation of Database)														
		CO2	To solve various SQL queries for user defined schemas														
		CO3	To generalize PL/ SQL blocks														
		CO4	To interpret the usage of predefined objects.														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	1	-	3	-	-	-	-	-	-	-	-	-	-	3	2
		CO2	3	2	1	1	-	-	-	-	-	-	-	-	-	1	3
		CO3	2	1	1	-	-	-	-	-	-	-	-	-	-	1	-
		CO4	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-
		Target	2	1.5	1.67	1										1.5	2.5
3-2																	
R1632051	Computer Networks	CO1	Able to understand OSI and TCP/IP reference models and Example networks														
		CO2	Able to understand characteristics of transmission media and classify multiplexing techniques														
		CO3	Able to detect errors and control the flow of data														
		CO4	Able to analyze channel allocation protocols and IEEE standards														
		CO5	Able to compute and implement routing algorithms and congestion control algorithms														
		CO6	Able to interpret the use of TCP, UDP, DNS and E-mail services role in WWW.														
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	2														2
		CO2	2													2	
		CO3	3	2	2									2			2
		CO4		2	2									2		2	2
		CO5	2	2	2									2		2	2
		CO6			2									2	2	2	2
		Target	2.1	2	2									2	2	2	2
R1632052	Data Mining	CO1	Understand stages in building a Data Warehouse														
		CO2	Understand the need and importance of preprocessing techniques														
		CO3	Understand the need and importance of Similarity and dissimilarity techniques														
		CO4	Analyze and evaluate performance of algorithms for Association Rules.														
		CO5	Analyze Classification and Clustering algorithms														
		CO6															
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	2	--	--	1	--	2	--	3	--	--	--	--	--	1	--
		CO2	3	1	--	--	--	--	--	--	--	--	--	--	--	--	3
		CO3	2	--	1	--	--	2	--	--	--	--	--	--	--	1	--
		CO4	--	3	1	1	--	3	--	--	--	--	--	--	--	--	3
		CO5	--	3	1	1	--	3	--	--	--	--	--	--	--	--	3
		CO6	--	3	1	1	--	3	--	--	--	--	--	--	--	--	3
		Target	2	3	1	1		3		3						1	3

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY															
DEPARTMENT OF INFORMATION TECHNOLOGY															
R16 CO-PO MATRIX															
R1632053	Web Technologies	CO1	Able to analyze a web page and identify its elements and attributes.												
		CO2	Able to create web pages using JS.												
		CO3	Able to build dynamic web pages.												
		CO4	Able to build web applications using PHP.												
		CO5	Able to create programming through PERL and Ruby.												
		CO6	Able to develop simple client												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	2	2	2								2	2	2	2
	CO2	2	2	3								2		3	3
	CO3	2	3	3								2	2	2	2
	CO4	2	2	2	2					2	2	2	2	2	2
	CO5	2	2	2	2					2	2	2	2	2	2
CO6	2	3	3	2					2	2	2	2	3	2	
Target	2	2	2								2	2	2.333	2.167	
R132054	Software Testing Methodologies	CO1	able to Design and Conduct a Software Test Process for software testing project. i.e., Preparing Test cases and test planning manage software problems and defects, generate test report. (Create).												
		CO2	able to Discover the needs of Software Testing Automation and ability to use Existing test tools to support test automation. (Apply).												
		CO3	ability to understand and identify various software testing problems, and solve them by designing and selecting software test models, criteria, strategies, and methods.(Apply).												
		CO4	able to Use Various Communication methods and skills to communicate with their teammates to conduct their Practice-oriented software testing projects.(Apply)												
		CO5	able Discuss basic understanding and knowledge of contemporary issues in software testing, such as Component based testing. (Understand)												
		CO6	able to Apply Software testing knowledge and engineering methods to understand and identify various software testing problems and will be able to Apply various software testing methods and modern tools for testing their own Project. (Apply)												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	2	1	2	-	-	-	-	-	-	-	-	-	2	-
	CO2	-	2	2	-	-	-	-	-	1	-	-	-	2	-
	CO3	1	2	2	-	-	-	-	-	1	-	-	-	2	-
	CO4	1	2	2	-	-	-	-	-	2	-	-	-	2	-
	CO5	1	2	2	-	-	-	-	-	1	-	-	-	2	-
CO6	-	-	2	-	2	-	-	-	2	-	-	-	2	2	
Target	1.25	1.8	2						1.4				2	2	
R1632055A	OPEN ELECTIVE - ARTIFICIAL INTELLIGENCE	CO1	To have a basic proficiency in a traditional AI language including an ability to write simple to intermediate programs and an ability to understand code written in that language												
		CO2	To improve analytical and problem solving skills based on the characteristics of the problem using various heuristic search techniques and to improve designing and playing a game												
		CO3	To have knowledge on propositional calculus, propositional and predicate logic to understand few systems such as natural deduction, axiomatic system, etc.												
		CO4	To have an understanding of the basic issues of knowledge representation and blind and heuristic search, as well as an understanding of other topics such as minimax, resolution, etc. that play an important role in AI programs.												
		CO5	To have a basic understanding of some of the more advanced topics of AI such as learning, natural language processing, agents and robotics, expert systems, and planning												
		CO6	To have basic knowledge on probabilistic analysis and networks as well as fuzzy systems and fuzzy logics.												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	2	1	1										2	2
	CO2	2	2	2										2	2
	CO3	2												2	3
	CO4	2	1	1										1	2
	CO5	2	1	1										1	1
CO6	2	1	2										1	2	
Target	2	1.2	1.4										1.5	2	
R1632056	Web Technologies Lab	CO1	able to develop webpages												
		CO2	able to develop dynamic webpages using Javascript												
		CO3	able to create DTD's , XML schemas												
		CO4	able to create websites using PHP												
		CO5	able to develop websites using Ajax and Databases												
		CO6	able to write programs in PERL and RUBY												
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1			2		2								2	2	
CO2			2		2						2				
CO3			2		2						2				

CO4																				
CO5	2	2		3	3									2		2		2		
CO6																				
Target	2	2	2	3	2.25									2		2		2		2

**VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY
DEPARTMENT OF INFORMATION TECHNOLOGY**

R16 CO-PO MATRIX

R1632057	Software Testing Lab	CO1	Should be able to design test cases using black box testing techniques to test the system.																			
		CO2	Should be able to design cause effect graphs for the given system.																			
		CO3	Should be able to draw the control flow graph and cyclomatic complexity for the system.																			
		CO4	Should be able to design test cases to FSM using state table based testing.																			
		CO5	Should be able to generate du and dc paths to given problem statement.																			
		CO6	Should be able to perform mutation testing and to compute mutation score.																			
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2					
		CO1	2	2	1		1									2	2					
		CO2	2	2	2		1									2	2					
		CO3		1												2	2					
		CO4		2												2	2					
CO5				1											2							
CO6	2		2												2							
Target	2	1.75	1.5		1									2	2							

R1632058	Data Mining Lab	CO1	Demonstrates Data Pre-processing Techniques.																			
		CO2	Demonstrates and Discovers Knowledge using Classification Methods																			
		CO3	Demonstrates and Discovers Knowledge using Association Methods																			
		CO4	Demonstrates and Discovers Knowledge using Clustering Methods																			
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2					
		CO1	-	3	1	1	-	3	-	-	-	-	-	-	-	-	3					
		CO2	-	3	1	1	-	3	-	-	-	-	-	-	-	-	3					
		CO3	-	3	1	1	-	3	-	-	-	-	-	-	-	-	3					
		CO4	-	3	1	1	-	3	-	-	-	-	-	-	-	-	3					
		Target		3	1	1		3									3					

4-1

R1641051	Cryptography and Network Security	CO1	Identify security threats, services and solve modular and linear congruence equations.																			
		CO2	Distinguish stream ciphers, block ciphers and Algebraic Structures.																			
		CO3	Apply number theory in public key cryptographic algorithms.																			
		CO4	Illustrate Hash Algorithms and Digital Signatures for Online Authentication.																			
		CO5	Analyze various mail security protocols and e-commerce transaction protocols.																			
		CO6	Protect the system by firewall and understand various password protection mechanisms																			
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2					
		CO1	3	2	2												2					
		CO2	3			2	2						2					2				
		CO3	3			2							2									2
		CO4			2	2										2		2				2
CO5			2	2							2				2					2		
CO6			2								2	2		2	2					2		
Target	3	2	2	2	2						2	2	2	2	2					2		

R1641052	Mobile Computing	CO1	Interpret various mobile communication and computing terminologies, paradigms and architectures.																			
		CO2	Analyze problems in wireless MAC and infer different multiplexing techniques																			
		CO3	Interpret the working of mobile network layer, based on Mobile IP.																			
		CO4	Analyze the working of conventional TCP/IP and infer different protocols for mobile transport layer.																			
		CO5	Analyze data synchronization, data hoarding issues and resolving techniques as part of mobile communication with various client server computing architectures.																			
		CO6	Interpret the working of MANETs and technologies in mobile computing environment.																			
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2					
		CO1	2	-	1	-	-	-	-	-	-	-	-	-	1	-	2					
		CO2	3	2	1	-	-	-	-	-	-	-	-	-	-	2	1					
		CO3	3	2	2	-	-	-	-	-	-	-	-	-	-	2	1					
		CO4	3	2	1	-	-	-	-	-	-	-	-	-	-	2	1					
CO5	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-							
CO6	2	1	1	-	-	-	-	-	-	-	-	-	2	2	3							
Target	3.2	2	2										1.5	2	2.3							

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DEPARTMENT OF INFORMATION TECHNOLOGY															
R16 CO-PO MATRIX															
R1641053	Data Ware Housing and Business Intelligence	CO1	Infers about Data Warehouse & why Data Warehouse is imperative over Traditional Databases.												
		CO2	Applies Preprocessing Techniques before Data Mining												
		CO3	Extends about Data Warehouse : Architecture & Implementation												
		CO4	Infers Classification & recite different approaches.												
		CO5	Infers Association Analysis & recite different approaches.												
		CO6	Infers Cluster Analysis & recite different approaches.												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	2	--	--	1	--	2	--	3	--	--	--	--	1	--
	CO2	3	1	--	--	--	--	--	--	--	--	--	--	--	3
	CO3	2	--	1	--	--	2	--	--	--	--	--	--	1	--
	CO4	--	3	1	1	--	3	--	--	--	--	--	--	--	3
	CO5	--	3	1	1	--	3	--	--	--	--	--	--	--	3
	CO6	--	3	1	1	--	3	--	--	--	--	--	--	--	3
Target	2.1	2.3	1	1		2.3		3					1	3	
R1641054	Managerial Economics and Financial Analysis	CO1	Understanding basics of Managerial Economics and concepts of demand.												
		CO2	Remembering the concepts of production & cost and applying breakeven analysis to determine breakeven point.												
		CO3	Analyzing different market structures to determine pricing.												
		CO4	Evaluating different forms of business organization.												
		CO5	Applying accounting principles to know the financial position of the business organization.												
		CO6	Create awareness about capital budgeting method to determine project worth.												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	-	-	-	-	-	-	-	-	-	-	2	2	3	2
	CO2	-	2	-	-	-	-	-	-	-	-	2	2	3	3
	CO3	-	-	-	-	-	-	-	-	-	-	2	2	3	2
	CO4	-	-	-	-	-	3	2	-	-	-	2	2	3	3
	CO5	-	-	2	2	-	-	-	-	-	2	2	2	3	2
	CO6	-	-	-	2	2	-	-	-	-	-	3	2	3	3
Target		2	2	2	2	3	2			2	2.2	2	3	2.5	
R164105A	Elective-I(Big Data Analysis)	CO1	Applying Java concepts required for developing map reduce programs												
		CO2	Deriving business benefits from structured and unstructured data												
		CO3	Preparing for data summarization, query, and analysis												
		CO4	Applying data modeling techniques to large data sets												
		CO5	Creating applications for Big Data analytics												
		CO6	Building a complete business data analytic solution												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	3	-	-	-	-	-	-	-	-	-	-	3	2
	CO2	2	-	2	-	2	-	-	-	-	-	-	-	3	2
	CO3	2	2	2	2	2	-	-	1	-	-	-	2	1	2
	CO4	1	3	3	-	-	-	-	-	-	-	-	2	2	2
	CO5	2	2	2	2	2	-	-	1	-	-	-	2	2	1
	CO6	2	2	2	2	2	-	-	1	-	-	-	2	2	2
Target	2	2.4	2.2	2	2			1				2	2.17	1.83	
R16410	Elective-II(Cloud Computing)	CO1	Explains the key dimensions of the challenge of Cloud Computing. (U).												
		CO2	Analyzes the economics, financial and technological implications for selecting cloud computing for own organization. (AN)												
		CO3	Analyzes the financial, technological, and organizational capacity of employer's for actively initiating and installing cloud-based applications. (AN)												
		CO4	Evaluation of own organizations' needs for capacity building and training in cloud computing-related IT areas. (E)												
		CO5	Describes about the cloud resources management and various scheduling in the cloud												
		CO6	Explains about the storage concepts in Cloud (U)												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	1	1	-	-	-	-	1	-	-	-	-	-	1	-
	CO2	2	2	1	-	-	-	-	-	-	-	-	-	-	-
	CO3	2	2	2	-	-	-	1	-	-	-	-	-	1	1
	CO4	2	1	1	-	-	-	-	-	-	1	-	-	1	-
	CO5	1	1	-	-	-	-	-	-	1	-	-	-	-	1

CO6	2	2	1	-	1	-	-	-	-	-	1	-	1	1
Target	1.67	1.5	1.25		1		1		1	1	1		1	1

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DEPARTMENT OF INFORMATION TECHNOLOGY															
R16 CO-PO MATRIX															
R1641057	Mobile Computing Lab	CO1	To Applying Demonstrate the software setup for creating mobile applications using Java2 Mobile Edition Software on the host Operating System.												
		CO2	Creating Design new mobile applications applying the concepts of wireless application development environment.												
		CO3	Applying Demonstrate the software setup for creating mobile application using Android Software Development Kit using Android Studio IDE.												
		CO4	Applying the Construct a story board design for the mobile application to be developed.												
		CO5	Applying Separates the data related logic, user interface logic with a controller acting as an interface between Model and View components to process all the business logic and incoming requests, manipulate data using the Model component and interact with the Views to render the final output through MVC architectural pattern.												
		CO6	Applying Demonstrate the usage of emulator configuring to a device with variable hardware properties for viewing the output of a mobile application and deploying the same on actual UE, play store for end user operations												
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
	CO1	2	2	1										1	2
	CO2		1		3									1	3
	CO3	2	2	2										2	
	CO4	1		2	2										2
	CO5		3	1										2	
	CO6	2	1	2											3
	Target	1.75	1.8	1.6	2.5									1.5	2.5
R1	Cryptograph and Network Security Lab	CO1	Able to implement security threats, hijacking methods and solves cryptic algorithms												
		CO2	Able to design stream ciphers and block ciphers and can design a new algorithm												
		CO3	Able to code number theory and applies knowledge in public key cryptographic algorithms.												
		CO4	Able to implement Hash Algorithms and digital signatures for online authentication.												
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
	CO1	3	2	2											2
	CO2	3			2	2					2			2	
	CO3	3			2						2				2
	CO4			2	2									2	2
	Target	3	2	2	2	2					2			2	2
4-2															
R1642051	Distribute Systems	CO1	Able to understand the nature of distributed systems and the common design problems, issues in the descriptive models.												
		CO2	Able to acquire knowledge on the characteristics of protocols for inter-process communication in a distributed environment and to support communication patterns.												
		CO3	Able to describe the features and applications of programming models in distributed systems.												
		CO4	Able to describe the operating system supports the middleware layer in providing invocations upon shared resources												
		CO5	Able to understand the distributed file systems architectures and implementations, how a set of processes can coordinate their actions.												
		CO6	Able to understand the mechanisms for concurrency control and the role of replication in a distributed environment.												
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1
	CO1	2	2	--	3	--	--	--	--	2	--	--	2	2	2
	CO2	2	3	--	3	--	--	--	--	2	--	--	2	1	1
	CO3	2	2	--	2	--	--	--	--	3	--	--	2	1	3
	CO4	2	2	--	3	--	--	--	--	2	--	--	2	3	2
	CO5	2	2	--	--	--	--	--	--	2	--	--	2	2	1
	CO6	2	1	--	1	--	--	--	--	1	--	--	2	1	2
Target	2	2	--	3	--	--	--	--	2	--	--	2	2	2	
R	Management Science	CO1	Understanding basics of management and organization.												
		CO2	Remembering principles of management and applying the concepts of work study and SQC to improve productivity.												
		CO3	Analyze the functions of HRM and marketing.												
		CO4	Applying PERT & CPM techniques to solve project management problems												
		CO5	Evaluating SWOT Analysis for formulating and implementing strategies.												
		CO6	Creating awareness about modern or contemporary management practices.												
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	2	2	2	2	-	2	
CO2	-	-	-	-	-	-	-	-		2	2	2	-	2	

C03	-	-	-	-	-	-	-	-	2	3	2	2	-	2
C04	-	-	2	-	-	-	-	-	-	2	3	2	-	2
C05	-	-	-	-	-	-	-	-	-	2	2	2	-	2
C06	-	-	-	-	2	-	-	-	-	2	2	2	-	2
Target			2		2				2	2.17	2.17	2		2

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R16 CO-PO MATRIX

R1642053	Management Information System	C01	Able to understand that MIS is very useful for efficient and effective planning and control functions of the management. Management is the art of getting things done through others. MIS will be instrumental in getting the things done by providing quick and timely information to the management.												
		C02	Able to interpret students with comprehensive knowledge and technical skills needed to successfully participate in and support the increasingly applied role of information technology in corporate decision making.												
		C03	Able to analyze comparison of actual performance with the standard and budgeted performance, variances are brought to the notice of the management by MIS which can be corrected by taking remedial steps.												
		C04	By making comparison of actual performance with the standard and budgeted performance, variances are brought to the notice of the management by MIS which can be corrected by taking remedial steps.												
		C05	Able to enable the students to use information to assess the impact of the Internet and Internet technology on electronic commerce and understand the specific threats and vulnerabilities of computer systems.												
		C06	Able to make student to know how MIS is helpful in controlling costs by giving information about idle time, labour turnover, wastages and losses and surplus capacity.												
		Target													
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01									2			2			2
C02				2				2						2	
C03									2			2			2
C04					3				2		2	2			2
C05				2					2					2	2
C06									2			2	2	2	2
Target				2	2	3			2	2		2	2	2	2

R1642054

R1642054	Elective-III(Cyber Security)	C01	Able to understand the principles and laws of Cyber Security												
		C02	Able to classify the various cyber offenses and their												
		C03	Able to identify cyber crimes w.r.t mobile devices and wireless networks												
		C04	Able to use various tools to detect the attacks												
		C05	Able to explore Indian acts of cyber security												
		C06	Able to understand and interpret cyber forensics												
		Target													
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01									2			2			2
C02									2			2		2	
C03									2			2			2
C04					3				2		2	2			2
C05									2			2		2	2
C06									2			2	2	2	2
Target					3				2			2	2	2	2

Seminar

R1642055	Seminar	C01	Access information in a variety of ways, by using library collections and services and other search tools and databases.														
		C02	Demonstrate effective writing skills by employing various techniques of academic writing.														
		C03	Understand the role that effective presentations have in public/professional contexts and gain experience in formal/ informal presentation.														
		C04	Demonstrate the ability to collaborate with others as they work on reading, writing, speaking, researching skills.														
		Target															
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01		3	2	-	3	-	-	-	-	-	-	-	3	2	2
C02		-	-	-	-	-	-	-	2	3	3	-	2	-	-		
C03		3	-	-	-	-	-	-	-	-	-	-	2	3	-		
C04		2	-	-	2	2	-	-	-	2	-	-	3	2	-		
Target		2.67	2		2.5	2			2	3	2.5		2.5	2.33	2		

Project

R1642056	Project	C01	Able to collaborate with team members in analyzing the requirements of the project to be developed.														
		C02	Able to generate necessary design specifications and documents for the chosen project.														
		C03	Able to gain proper domain and language knowledge to implement/code the application.														
		C04	Able to test and deploy the project after implementation.														
		C05	Able to demonstrate the project comprehensively with necessary tools.														
		Target															
				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01		3	3	2	3	3	2	3	2	3	2	2	2	3	-		
C02		1	3	3	2	2	-	3	-	-	3	3	3	3	2		
C03		1	3	2	2	-	-	3	-	2	3	1	1	2	3		
C04		-	3	3	2	1	1	2	-	1	1	2	-	2	2		
C05		-	2	1	2	1	2	3	-	-	2	2	-	3	1		
Target		1.67	2.8	2.2	2.2	1.75	1.67	2.8	2	2	2.2	2	2	2.6	2		

