

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY																
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING																
R16 CO-PO MATRIX																
I B. TECH. I SEM																
R161101	ENGLISH-I	C01	identify the context, topic, and pieces of specific information from social or transactional dialogues spoken by native speakers of English (L3)													
		C02	formulate sentences using proper grammatical structures and correct word forms and take notes while listening to a talk/lecture to answer questions (L3)													
		C03	speak clearly on a specific topic using suitable discourse markers in informal discussions (L3)													
		C04	write summaries based on global comprehension of reading/listening texts (L3)													
		C05	produce a coherent paragraph interpreting a figure/graph/chart/table (L4)													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		C02	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		C03	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		C04	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		C05	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		Target									2	3		1		
R161102	MATHEMATICS-I	C01	Understand the first order ordinary Differential equations and analyse their applications.													
		C02	Classify and solve the higher order ordinary differential equations and its applications.													
		C03	Apply Laplace transformations and Evaluate the improper integral													
		C04	Remember partial differentiation and Compute extreme values.													
		C05	Construct the Partial differential equations and Solve first order partial differential equations													
		C06	Classify the nature of higher order partial differential equations													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C02	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C03	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C04	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C05	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C06	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		Target	3	2										1		
R161109	Mathematics-II (Mathematical Methods)	C01	Appropriate Numerical methods to find roots of algebraic & transcendental equations													
		C02	Understand the interpolation and extrapolation techniques													
		C03	Apply different numerical methods to Solve differential equations.													
		C04	Interpret Fourier series analysis which is central to many applications in engineering apart .													
		C05	Solving of Higher order Partial differential equations and their application													
		C06	Apply Fourier transforms to Evaluate improper integrals													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C02	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C03	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C04	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C05	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C06	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		Target	3	2										1		
R161104	Applied Physics	C01	Students acquire the ability to apply knowledge of Interference concepts of light													
		C02	Students acquire the ability to apply knowledge of Diffraction concepts of light.													
		C03	Students will be able to understand the applications of Lasers.													
		C04	Knowledge of EMW wave propagation and its applications will be gained.													
		C05	Students will be able to develop scientific point of view in solving problems in Quantum mechanics.													
		C06	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
		C01	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C02	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C03	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C04	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C05	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		C06	3	2	-	-	-	-	-	-	-	-	-	1	-	-
		Target	3	2										1		

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING																		
R16 CO-PO MATRIX																		
R161107	Computer Programming	CO1	Understanding basic jargon of Computer and formulating algorithmic solutions to problems.															
		CO2	Understanding programming style in C															
		CO3	Understanding branching & iteration in Problem solving.															
		CO4	Build program blocks using Modular programming approach.															
		CO5	Implementation of data using Arrays & Strings															
		CO6	Comprehension of group data using structures and File Management															
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
		C01	2	2	2	-	2	-	-	-	-	-	-	-	2	-		
		C02	1	1	1	-	2	-	-	-	-	-	-	-	2	-		
		C03	2	2	2	2	-	-	-	-	-	-	-	-	2	2		
		C04	1	2	3	3	-	-	-	-	-	-	-	-	2	2		
		C05	2	3	2	2	1	-	-	-	-	-	-	-	2	2		
		C06	2	3	3	3	-	-	-	-	-	-	-	-	2	2		
		Target	1.67	2.17	2.17	2.5	1.67								2	2		
R161112	Engineering Drawing	CO1	To draw various Engineering curves & polygons.															
		CO2	To understand different scales used in the industry, to recognize principles of projection &to draw Orthographic projections of points.															
		CO3	To interpret the projection principles to draw projections of straight lines.															
		CO4	To understand the various ways to draw projections of planes.															
		CO5	To draw the projections of solids by applying principles of Orthographic projections.															
		CO6	To convert isometric views into orthographic views and vice versa.															
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
		C01	1	1	1	-	-	-	-	-	-	-	-	1	-	-		
		C02	2	2	2	-	-	-	-	-	-	-	-	1	-	-		
		C03	2	2	2	-	-	-	-	-	-	-	-	1	-	-		
		C04	2	2	2	-	-	-	-	-	-	-	-	1	-	-		
		C05	2	2	2	-	-	-	-	-	-	-	-	1	-	-		
		C06	3	3	3	-	-	-	-	-	-	-	-	1	-	-		
		Target	2	2	2									1				
R161114	English - Communication Skills Lab – 1	CO1	Identify the context, topic, and pieces of specific information from social or transactional dialogues spoken by native speakers of English and speak clearly on a specific topic using suitable discourse markers in informal discussions (L3)															
		CO2	take notes while listening to a talk/lecture; to answer questions in English; formulate sentences using proper grammatical structures and correct word forms; and use language effectively in competitive examinations (L3)															
		CO3	Write summaries based on global comprehension of reading/listening texts; produce a coherent write-up interpreting a figure/graph/chart/table; and use English as a successful medium of communication. (L3)															
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
		C01	-	-	-	-	-	-	-	-	2	3	-	1	-	-		
		C02	-	-	-	-	-	-	-	-	2	3	-	1	-	-		
		C03	-	-	-	-	-	-	-	-	2	3	-	1	-	-		
		Target									2	3		1				
		R161115	Applied / Engineering Physics Lab	CO1	Students Acquire ability to apply knowledge of Interference concepts of light													
				CO2	Students Acquire ability to apply knowledge of Interference concepts of light													
				CO3	Students will be able to understand the applications of Lasers													
				CO4	Knowledge of Acoustics of buildings and NDT applications will be gained													
				CO5	Students will be able to understand the material properties and nuclear power generation													
				CO6	Students will acquire sufficient knowledge of the various applications of magnetic and dielectric materials in industry and engineering.													
	PO1			PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2		
C01	3			3	3	2	2	-	-	-	-	-	-	-	-	-		
C02	2			2	2	3	2	-	-	-	-	-	-	-	-	-		
C03	3			2	2	2	3	-	-	-	-	-	-	-	-	-		
C04	2			2	3	3	3	-	-	-	-	-	-	-	-	-		
C05	3			2	3	2	2	-	-	-	-	-	-	-	-	-		
C06	3			3	2	2	1	-	-	-	-	-	-	-	-	-		
Target	2.67			2.33	2.5	2.33	2.17											

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R16 CO-PO MATRIX																	
R161119	Computer Programming Lab	C01	Understand the basic terminology used in computer programming														
		C02	Write, compile and debug programs in C language.														
		C03	Use different data types in a computer program.														
		C04	Design programs involving decision structures, loops and functions.														
		C05	Understand the difference between call by value and call by reference														
		C06	Understand the dynamics of memory by the use of pointers														
		C07	Use different data structures and create/update basic data files.														
		C01	3	1	1	1	2	-	-	-	-	-	-	-	-	-	-
		C02	3	3	1	1	2	-	-	-	-	-	-	-	-	1	-
		C03	3	2	3	2	2	-	-	-	-	-	-	-	-	2	-
		C04	3	3	2	3	2	-	-	-	-	-	-	-	-	2	-
		C05	3	3	2	2	3	-	-	-	-	-	-	-	-	2	-
		C06	3	2	2	2	2	-	-	-	-	-	-	-	-	3	-
		C06	3	2	3	3	3	-	-	-	-	-	-	-	-	3	-
		Target	3	2.29	2	2	2.29									2.17	
I B. TECH. II SEM																	
R161201	English –II	C01	To read and comprehend English stories and texts														
		C02	To write effectively using appropriate format and transfer verbal information into nonverbal information														
		C03	To improve listening skills particularly related to Technical English and speak in English without inhibition														
		C04	To expand vocabulary range and use it effectively and grammatically for English communication														
		C05	To improve life skills and core skills necessary for effective communication and critically respond in English to a real life situations														
		C01	-	-	-	-	-	-	-	-	2	3	-	1	-	-	
		C02	-	-	-	-	-	-	-	-	2	3	-	1	-	-	
		C03	-	-	-	-	-	-	-	-	2	3	-	1	-	-	
		C04	-	-	-	-	-	-	-	-	2	3	-	1	-	-	
		C05	-	-	-	-	-	-	-	-	2	3	-	1	-	-	
		Target									2	3		1			
		R161203	Mathematics-III	C01	Solve the system of linear equations and Analyse their applications												
				C02	Compute an Eigen values and eigen vectors.												
				C03	Evaluate double and Triple integrals and Apply to find surface area and volumes of solids.												
C04	Compare definite integral with special functions																
C05	Differentiate the scalar and vector functions.																
C06	Understand line, surface and volume integrals and Establish vector integral theorems.																
C01	3			2	-	-	-	-	-	-	-	-	-	1	-	-	
C02	3			2	-	-	-	-	-	-	-	-	-	1	-	-	
C03	3			2	-	-	-	-	-	-	-	-	-	1	-	-	
C04	3			2	-	-	-	-	-	-	-	-	-	1	-	-	
C05	3			2	-	-	-	-	-	-	-	-	-	1	-	-	
C06	3			2	-	-	-	-	-	-	-	-	-	1	-	-	
Target	3			2											1		
R161211	Applied Chemistry			C01	Able to explain about synthesis, physical and mechanical properties, compounding and reframing & fabrication of polymers, plastics and elastomersAndApplications of fibre reinforced polymers along with conducting polymers												
		C02	Recognize specific characteristic properties of fuels including calorific value determination , Ranking and Analysis of coal by proximate and ultimate methods														
		C03	Understanding the principles,Construction and working of galvanic cells, electrode potentials, concentration cells , rechargeable batteriesApplytheknowledge of electro chemistry to corrosion, distinguish various types of corrosions and able to solve corrosion problems														
		C04	Discovery of advanced materials i.e.nanomaterials,liquidcrystals,super conductors and Illustrate the applications of cleaner and greener synthetic methods adapt in industries for healthy living														
		C05	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														
		C06	Recognizenon-conventional energy sources, construction & working of photovoltaic cell, design of hydropower plant, tidal power, geothermalenergy, bio gas for green environment.														
		C01	2	3	-	-	-	-	-	-	-	-	2	-	-	-	
		C02	3	3	-	-	-	-	-	-	-	-	2	2	-	-	
		C03	2	2	-	-	-	-	-	-	-	-	1	3	-	-	
		C04	3	2	-	-	-	-	-	-	-	-	1	3	-	-	
		C05	2	1	-	-	-	-	-	-	-	-	1	1	-	-	
		C06	2	2	-	-	-	-	-	-	-	-	1	2	-	-	
		Target	2.33	2.17									1.33	2.2			

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING																
R16 CO-PO MATRIX																
R161215	Object Oriented Programming through C++	C01	Understand the basic terminology used in OOPs Concepts													
		C02	Understand Scope rules, various members functions of Classes & Objects.													
		C03	Analyze the behaviour of OOPS features like Polymorphism & Inheritance.													
		C04	Analyze role of virtual functions & pointers													
		C05	Understand the behaviour of Templates & Exceptions													
		C06	Understand STL library.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	1	3	2	--	--	--	--	--	--	--	--	1	2	2
		C02	1	2	3	1	--	--	--	--	--	--	--	-	2	2
		C03	1	2	2	--	--	--	--	--	--	--	--	2	2	2
		C04	1	3	3	--	--	--	--	--	--	--	--	2	2	2
		C05	--	3	3	1	--	--	--	--	--	--	--	1	2	2
		C06	--	3	3	3	--	--	--	--	--	--	--	--	2	2
Target	1	2.67	2.67	1.67								1.5	2	2		
R161212	Environmental Studies	C01	Able to Understand The concepts of the ecosystem													
		C02	Able to Understand The natural resources and their importance													
		C03	Able to learn The biodiversity of India and the threats to biodiversity ,and Applyconservation practices													
		C04	Able to learn Various attributes of the pollution and their impacts													
		C05	Able to Understand Social issues both rural and urban environment													
		C06	Able to Understand About environmental Impact assessment and Evaluatethe stages involved in EIA													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	-	-	-	-	-	-	3	-	-	-	-	3	-	-
		C02	-	-	3	-	-	-	3	-	-	-	-	3	-	-
		C03	-	-	-	-	-	-	3	-	-	-	-	3	-	-
		C04	-	-	3	-	-	-	3	-	-	-	-	3	-	-
		C05	-	-	3	-	-	-	3	-	-	-	-	3	-	-
		C06	-	-	3	-	-	-	3	-	-	-	-	3	-	-
Target			3				3					3				
R161216	Engineering Mechanics	C01	To understand the concepts of force and friction, direction and its application.													
		C02	To understand the application of free body diagrams, solution to problems using graphical methods and law of triangle forces.													
		C03	To understand the concepts of centroid and Centre of gravity.													
		C04	To understand the concepts of moment of inertia and polar moment of inertia including transfer													
		C05	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.													
		C06	To understand the concepts of work, energy and particle motion.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	3	2	-	-	-	-	-	-	-	-	-	2	-	-
		C02	3	2	1	-	-	-	-	-	-	-	-	2	-	-
		C03	3	2	-	-	-	-	-	-	-	-	-	2	-	-
		C04	3	2	1	-	-	-	-	-	-	-	-	2	-	-
		C05	3	2	-	-	-	-	-	-	-	-	-	2	-	-
		C06	3	2	1	-	-	-	-	-	-	-	-	2	-	-
Target	3	2	1									2				
R161227	Applied / Engineering Chemistry Laboratory	C01	Estimate the amount of metal ions present in different solutions (L5)													
		C02	Analyse the quality parameters of water (L4)													
		C03	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
		C01	-	3	2	-	-	-	-	1	2	-	-	2	-	-
		C02	-	2	3	-	-	-	-	1	3	-	-	1	-	-
		C03	-	1	2	-	-	-	-	1	2	-	-	1	-	-
Target		2	2.33					1	2.3			1.33				

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING																
R16 CO-PO MATRIX																
R161221	English - Communication Skills Lab - 2	C01	prioritize information from reading texts after selecting relevant and useful points and paraphrase short academic texts using suitable strategies and conventions (L3)													
		C02	make formal structured presentations on academic topics using PPT slides with relevant graphical elements (L3)													
		C03	participate in group discussions using appropriate conventions and language strategies (L3)													
		C04	prepare a CV with a cover letter to seek internship/ job (L2)													
		C05	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
		C01	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		C02	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		C03	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		C04	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		C05	-	-	-	-	-	-	-	-	2	3	-	1	-	-
		Target									2	3		1		
R161229	Object Oriented Programming Lab	C01	Demonstrate the basic Problem solving techniques through C++.													
		C02	Implement polymorphism, inheritance & virtual functions.													
		C03	Apply exceptions and standard template libraries.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	1	2	2	2	-	-	-	-	-	-	-	2	2	-
		C02	1	2	2	2	-	-	-	-	-	-	-	2	2	-
		C03	-	2	2	2	-	-	-	-	-	-	-	2	2	-
		Target	1	2	2	2								2	2	
R1621051	Statistics with R Programming	C01	Infers the concepts of Vectors and Listsfor programming.													
		C02	Extends and generalizes functions & pointers.													
		C03	Demonstrates the application of statistics over data sets.													
		C04	Discriminates the statistic results graphically.													
		C05	Differentiates probability distribution functions.													
		C06	Differentiates linear models.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	2	3	-	-	-	-	-	-	-	-	2	2	-	-
		C02	2	3	2	-	-	-	-	-	-	-	2	2	2	1
		C03	2	3	3	-	-	-	-	-	-	-	2	2	3	2
		C04	2	3	3	-	-	-	-	-	-	2	2	2	2	2
		C05	2	3	3	2	-	-	-	-	2	2	2	2	3	2
		C06	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	C01	Define the fundamental discrete mathematical structures.													
		C02	Apply logical reasoning to solve a variety of problems.													
		C03	Understand the functions concepts and distinguish different types of functions.													
		C04	Demonstrate the ability to solve problems using counting techniques and combinatory in the context of													
		C05	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
		C01	2	-	-	-	-	-	1	-	-	-	-	-	2	1
		C02	3	3	2	-	-	-	-	-	2	-	-	-	2	2
		C03	3	2	2	1	-	-	2	-	-	-	-	-	3	3
		C04	-	1	-	2	-	-	-	-	-	-	-	-	1	-
		C05	3	2	2	-	-	-	3	-	3	-	-	-	-	-
		Target	2.75	2	2	1.5			2		2.5				2	2

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R16 CO-PO MATRIX																
R1621053	Digital Logic Design	C01	Understand the basics of Digital electronics, number systems and digital codes													
		C02	Understand Boolean algebra to analyse the logic functions using k maps.													
		C03	Analyze the design procedure for different combinational circuits.													
		C04	Understand different synchronous sequential circuits and state machines.													
		C05	Design different types of registers and counters.													
		C06	Understand and design different programmable logic devices.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	3	-	-	-	-	-	-	-	-	-	-	-	3	1
		C02	2	2	-	-	-	-	-	-	-	-	-	-	2	1
		C03	2	2	3	-	-	-	-	-	-	-	-	-	3	2
		C04	2	2	-	-	-	-	-	-	-	-	-	-	2	1
		C05	2	-	3	-	-	-	-	-	-	-	-	-	2	1
		C06	2	-	2	-	-	-	-	-	-	-	-	2	2	1
		Target	2.17	2	2.67									2	2.33	1.17
R1621054	Python Programming	C01	Comprehends how software easily to be build right out of the box.													
		C02	Demonstrates the use of an interpreted language for problem solving through control statements including loops and conditionals.													
		C03	Practice with data structures for quick programming solutions.													
		C04	Demonstrates software building for real needs by breaking out code into reusable functions and modules.													
		C05	Ensure and to show the software reliability through exception handling.													
		C06	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
		C01	-	-	3	2	2	-	-	-	2	-	-	-	2	-
		C02	2	2	2	2	2	-	-	-	2	-	-	-	2	-
		C03	2	2	2	2	3	-	-	-	2	-	-	-	2	-
		C04	2	1	2	2	2	-	-	-	3	2	-	-	1	1
		C05	-	3	3	2	3	-	-	-	3	2	-	-	2	1
		C06	-	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++	C01	Able to distinguish between procedures and object oriented programming using arrays.													
		C02	Able to apply advanced data structure strategies like stacks and queues for exploring complex data structures.													
		C03	Able to implement all data structures like lists compare their performance and tradeoffs.													
		C04	Able to incorporate data structures into the applications such as binary trees, binary search trees													
		C05	Able to implement data structure algorithms for graphs through C++.													
		C06	Able to compare and contrast various data structures and sorting techniques in the area of performance.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	1	2	3	2	-	-	-	-	-	-	-	2	3	3
		C02	3	3	1	1	1	-	-	-	-	-	-	2	2	1
		C03	3	3	2	2	2	-	-	-	-	-	-	2	3	1
		C04	2	3	-	2	-	-	-	-	-	-	-	2	1	1
		C05	1	1	-	1	-	-	-	-	-	-	-	1	2	2
		C06	1	2	2	1	1	-	-	-	-	-	-	3	2	1
		Target	1.83	2.33	2	1.5	1.33							2	2.17	1.5
R1621056	Computer Graphics	C01	Understand, transform and analyze 2D Objects by learning output primitives.													
		C02	Represent various 3D Object representation models by learning various visualization techniques.													
		C03	Develop programs in OPENGGL by using apt functions for efficacy in Computer Graphics 2D/3D and Animation.													
		C04	Perform Rendering of 2D/3D Objects by learning about shading, texture mapping techniques and drawing shadows.													
		C05	Design complicated Real World Scenes by learning Iterated Function Systems for implementing Fractals.													
		C06	Apply 3D Solid Geometric Techniques for representing 3D objects.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	1	-	2	2	-	-	-	-	-	1	-	1	1	1
		C02	-	-	-	3	-	-	-	-	-	-	-	-	2	-
		C03	-	-	3	3	-	-	-	-	-	-	-	-	3	-
		C04	1	1	3	-	-	-	-	-	-	-	-	-	2	-
		C05	-	-	3	2	-	-	-	-	-	-	-	-	3	-
		C06	1	3	3	-	-	-	-	-	-	-	-	-	3	-
		Target	1	2	2.8	2.5						1		1	2.33	1

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY																
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING																
R16 CO-PO MATRIX																
R1621057	Data Structures through C++ Lab	C01	Able to understand various applications of data structures.													
		C02	Capable to identify the appropriate data structure for given problem.													
		C03	Able to implement data structure algorithms through C++.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	1	3	2	3	1	-	-	-	-	-	-	1	1	2
		C02	2	2	3	1	2	-	-	-	-	-	-	1	1	2
		C03	3	1	3	-	2	-	-	-	-	-	-	-	1	1
		Target	2	2	2.67	2	1.67							1	1	1.67
R1622051	Python Programming Lab	C01	Comprehend how software can easily be build right out of the box.													
		C02	Demonstrate the use of an interpreted language for problem solving through control statements including loops and conditionals.													
		C03	Apply data structures for quick programming solutions.													
		C04	Demonstrate software building for real needs by breaking out code into reusable functions and modules.													
		C05	Produce software reliability through exception handling.													
		C06	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
		C01	-	-	3	2	2	-	-	-	2	-	-	-	2	-
		C02	2	2	2	2	2	-	-	-	2	-	-	-	2	-
		C03	2	2	2	2	3	-	-	-	2	-	-	-	2	-
		C04	2	1	2	2	2	-	-	-	3	2	-	-	1	1
		C05	-	3	3	2	3	-	-	-	3	2	-	-	2	1
		C06	-	2	2	3	3	-	-	-	2	-	-	-	2	1
		Target	2	2	2.33	2.17	2.5				2.3	2			1.83	1
R1622052	Software Engineering	C01	Infer the basic software engineering methods , processes, process models and their applications.													
		C02	Apply the knowledge of requirements gathering methods to create an SRS document for a defined problem.													
		C03	Comprehend various Software Design, UI design Techniques and apply that knowledge for a defined problem.													
		C04	Analysis and implement concepts such as modularity, coding principles, Testing strategies and coding standards.													
		C05	Infer the Software Reliability, Quality and CASE tools by practicing Ethics & Team Work.													
		C06	Infer the maintenance process models and software reuse..													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	-	-	3	2	2	-	-	-	2	-	-	-	2	-
		C02	2	2	2	2	2	-	-	-	2	-	-	-	2	-
		C03	2	2	2	2	3	-	-	-	2	-	-	-	2	-
		C04	2	1	2	2	2	-	-	-	3	2	-	-	1	1
		C05	-	3	3	2	3	-	-	-	3	2	-	-	2	1
		C06	-	2	2	3	3	-	-	-	2	-	-	-	2	1
		Target	2	2	2.33	2.17	2.5				2.3	2			1.83	1
R1622052	Java Programming	C01	Understand basic principles of OOP while learning the syntactic elements of java for problem solving.													
		C02	Construct basic object oriented entities and methods.													
		C03	Use of class hierarchies, packages, interfaces, exceptions.													
		C04	Analyze the behaviour of Threads and I/O Stream in java.													
		C05	Demonstrate event handling through Applets.													
		C06	Construct simple GUI applications using AWT & SWINGS.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	1	3	3	-	-	-	-	-	-	-	-	-	3	3
		C02	1	3	3	-	-	-	-	-	-	-	-	3	3	3
		C03	-	3	3	3	-	-	-	-	-	-	-	3	3	3
		C04	-	3	3	3	-	-	-	-	-	-	-	2	1	3
		C05	-	-	3	-	3	-	-	-	-	-	-	3	1	3
		C06	-	-	3	-	3	-	-	-	-	-	-	3	-	3
		Target	1	3	3	3	3							2.8	2.2	3

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY																
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING																
R16 CO-PO MATRIX																
R1622053	Advanced Data Structures	C01	Describe external sorting algorithms like K – way merge sort.													
		C02	Generate code for Dictionary like applications using Hash functions													
		C03	Apply Priority Queues to applications like Selection & Simulation problems.													
		C04	Outline the need of balanced trees and respective operations.													
		C05	Apply amortized analysis on multi way trees.													
		C06	Relate algorithms in a variety of areas, including linear programming and duality, string matching, game theory													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	3	2	3	1	-	-	-	-	-	-	-	-	3	1
		C02	2	3	1	2	-	-	-	-	-	-	-	-	3	3
		C03	1	3	1	2	-	-	-	-	-	-	-	-	3	3
		C04	2	2	1	1	-	-	-	-	-	-	-	-	2	2
		C05	2	2	1	1	-	-	-	-	-	-	-	-	2	2
		C06	3	2	3	1	-	-	-	-	-	-	-	-	3	1
		Target	2.17	2.33	1.67	1.33									2.67	2
R1622054	Computer Organization	C01	Understand the modern computers with their processing units and also performance measurement of the computer system.													
		C02	Understand the fundamentals of different addressing modes and instruction sets.													
		C03	Compare different processors and their instruction types and addressing modes respectively.													
		C04	Analyze the concepts of interfacing the I/O devices using different types of buses.													
		C05	Understand the concepts of memory systems and their mapping functions.													
		C06	Analyze and design processing unit and micro programmed control unit.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	1	1	1	-	-	2	2	-	2	2	2	-	2	2
		C02	3	2	3	2	-	2	2	-	2	2	3	3	2	2
		C03	3	1	2		-	3	2	-	2	2	2	-	2	3
		C04	1	1	2	1	-	2	2	-	2	2	2	1	1	2
		C05	-	-	1	-	-	3	2	-	2	2	2	3	1	1
		C06	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
R1622055	Formal Languages and Automata Theory	C01	Design finite automata that recognize regular languages.													
		C02	Describe regular languages in terms of regular expressions.													
		C03	Differentiate ambiguous and unambiguous grammars.													
		C04	Design push down automata for context free languages.													
		C05	Use Turing machines in problem solving.													
		C06	Comprehend the hierarchy of problems arising in the computer science.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	3	3	3	1	2	-	-	-	-	-	-	1	3	2
		C02	3	3	2	-	2	-	-	-	-	-	-	1	3	2
		C03	1	2	2	1	2	-	-	-	-	-	-	-	1	2
		C04	3	2	2	2	2	-	-	-	-	-	-	1	2	2
		C05	2	3	2	2	1	-	-	-	-	-	-	1	2	1
		C06	2	2	1	2	2	-	-	-	-	-	-	2	2	2
		Target	2.33	2.5	2	1.6	1.83							1.2	2.17	1.83
R1622056	Principles of Programming Languages	C01	Describe syntax and semantics of programming languages.													
		C02	Comprehendvarious programming language constructs.													
		C03	Implement Subprograms in various programming languages.													
		C04	Apply Object oriented programming concepts.													
		C05	Implement Functional Programming.													
		C06	Interpret Logical Programming.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	2	2	2	2	-	-	-	-	-	-	-	2	2	2
		C02	1	-	2	1	-	-	-	-	-	-	-	2	2	2
		C03	2	2	1	1	-	-	-	-	-	-	-	2	2	3
		C04	2	1	2	2	-	-	-	-	-	-	-	2	1	3
		C05	2	2	2	2	-	-	-	-	-	-	-	2	2	2
		C06	3	3	2	2	-	-	-	-	-	-	-	2	2	3
		Target	2	2	1.83	1.67								2	1.83	2.5

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING																
R16 CO-PO MATRIX																
R1622057	Advanced Data Structures Lab	C01	To obtain practical knowledge on the application of dictionaries.													
		C02	To demonstrate balanced binary search trees.													
		C03	To formulate new solutions for programming problems or improve existing code using graphs and related algorithms.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	3	2	3	1	-	-	-	-	-	-	-	-	3	-
		C02	2	3	-	2	-	-	-	-	-	-	-	-	3	-
		C03	1	3	1	2	-	-	-	-	-	-	-	-	3	-
		Target	2	2.67	2	1.67									3	####
R1622058	Java Programming Lab	C01	Describe the installation process of java application.													
		C02	Demonstrate how to write, compile and execute the java programs.													
		C03	Develop the knowledge of OOP concepts.													
		C04	Use of interfaces, threads and exceptions.													
		C05	Use of Applets and events.													
		C06	Create a simple GUI based application.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	-	2	-	-	-	-	-	-	-	-	-	2	2	-
C02	3	3	3	-	-	-	-	-	-	-	-	2	3	2		
C03	2	3	3	2	-	-	-	-	-	-	-	2	3	2		
C04	2	3	3	3	-	-	-	-	-	-	-	2	3	2		
C05	2	3	3	3	-	-	-	-	2	-	2	2	3	2		
C06	2	3	3	3	-	-	-	-	2	-	2	2	2	2		
Target	2.2	2.83	3	2.75					2		2	2	2.67	2		
R1631051	Compiler Design	C01	Comprehendthe process involved in compilers, linkers, loaders, and phases of a compiler.													
		C02	Comprehend various top down and bottom up parsers.													
		C03	Interpretsyntax directed translation schemas.													
		C04	Demonstrate various methods to generate the intermediate code.													
		C05	Comprehend runtime environments and issues in generation of target code.													
		C06	Demonstrate various code optimization techniques.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	2	2	1	-	-	-	-	-	-	-	-	-	2	2
C02	2	1	3	2	-	-	-	-	-	-	-	-	3	3		
C03	3	1	3	1	-	-	-	-	-	-	-	-	3	3		
C04	1	-	2	2	-	-	-	-	-	-	2	1	3	3		
C05	2	2	2	3	-	-	-	-	-	-	-	-	2	3		
C06	1	2	-	2	-	-	-	-	-	-	2	1	2	3		
Target	1.83	1.6	2.2	2							2	1	2.5	2.83		
R1631052	Unix Programming	C01	Infer the importance of Unix operating system by learning its history, salient features and using basic utilities.													
		C02	Use File and Directory related utilities aptly for operations, with a strong understanding on UNIX file system.													
		C03	Implement various features of Shell for navigation, execution and customization as per requirements.													
		C04	Create/develop scripts using grep, sed and awk to produce the desired effects in data processing.													
		C05	Create shell scripts using the syntactic constructs of shell for producing the desired effects.													
		C06	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
		C01	1	1	1	-	1	-	-	-	-	-	-	-	1	1
C02	-	2	-	-	1	-	-	-	-	-	-	-	2	2		
C03	-	3	3	3	2	-	-	-	1	-	-	-	3	2		
C04	1	3	3	3	2	-	-	-	-	-	-	-	3	2		
C05	1	3	3	3	2	-	-	-	-	-	-	-	3	2		
C06	2	2	2	-	-	-	-	-	-	-	-	-	2	1		
Target	1.25	2.33	2.4	3	1.6				1				2.33	1.67		

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY																
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING																
R16 CO-PO MATRIX																
R1631053	Object Oriented Analysis and Design using UML	C01	Ability to find solutions to the complex problems using object oriented approach.													
		C02	Build classes, responsibilities and states using UML notation.													
		C03	Identify classes and responsibilities of the problem domain.													
		C04	Identify basic Interactions, Usecases of the problem domain.													
		C05	Understand advanced behavioral modeling using UML notation.													
		C06	Understand components of the problem domain.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	2	2	3	2	2	2	3	-	2	2	2	-	2	2
		C02	2	2	3	1	2	2	2	-	2	2	3	-	2	2
		C03	3	1	2	-	3	3	2	-	2	2	2	-	2	3
		C04	1	3	3	2	2	2	3	-	2	2	2	-	1	2
		C05	-	-	3	-	2	-	-	-	2	2	2	-	1	1
		C06	-	2	2	-	-	2	-	-	2	2	2	-	1	2
		Target	2	2	2.67	1.67	2.2	2.2	2.5		2	2	2.17		1.5	2
R1631054	Data Base Management Systems	C01	To understand the basics of database systems and applications.													
		C02	To construct logical design of database and information retrieval.													
		C03	To demonstrate relational model practically (Structured Query Language).													
		C04	To demonstrate and relate normalization for database design.													
		C05	To outline the necessity of transaction processing and concurrency control.													
		C06	To understand various file organizations and indexing techniques.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	2	-	-	-	-	-	3	-	-	-	-	-	1	-
		C02	3	2	2	-	-	-	-	-	-	-	-	-	-	2
		C03	3	2	1	-	3	-	-	-	-	-	-	-	2	3
		C04	3	2	1	-	-	-	-	-	-	-	-	-	1	3
		C05	1	-	-	-	-	-	-	-	-	-	-	-	1	-
		C06	2	-	-	-	-	-	-	-	-	-	-	-	1	-
		Target	2.33	2	1.33		3		3						1.2	2.67
R1631055	Operating Systems	C01	Comprehend various concepts of operating system													
		C02	Demonstrate the concept of Process, threads and CPU Scheduling Algorithms													
		C03	Infer various Memory Management Techniques													
		C04	Use the principles of Concurrency to solve synchronization problems													
		C05	Demonstrate various methods for handling Deadlocks													
		C06	Illustrate File System Implementation													
		C07	Infer concepts of LINUX Operating System													
		C08	Interpret the concepts of Android Operating System													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	2	3	3	-	-	-	-	-	-	-	-	1	3	2
		C02	3	3	3	1	-	-	-	-	-	-	-	-	3	3
		C03	3	3	3	-	-	-	-	-	-	-	-	-	3	3
		C04	2	2	3	1	-	-	-	-	-	-	-	-	2	2
		C05	2	2	3	1	-	-	-	-	-	-	-	-	3	3
C06	1	1	1	-	-	-	-	-	-	-	-	-	2	2		
C07	2	1	1	-	-	-	-	-	-	-	-	1	3	3		
C08	2	2	1	-	-	-	-	-	-	-	-	2	2.71	2.57		
Target	2.13	2.13	2.25	1								1.33	2.71	2.57		
R1631056	Unified Modeling Lab	C01	Understand various object oriented concepts and methodologies													
		C02	Build object oriented analysis model using UML													
		C03	Identify design requirements by creating a design model.													
		C04	Apply the concepts of refinement, iteration, reusability in Object Oriented Software Development.													
		C05	Recognize the difference between various object relationships: inheritance, association, whole-part, and dependency relationships.													
		C06	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
		C01	-	2	3	2	-	-	-	-	-	1	-	-	2	2
		C02	-	2	3	2	-	-	-	-	1	3	-	-	2	2
		C03	-	-	3	-	1	-	-	-	2	3	1	-	2	2
		C04	-	3	3	1	1	-	-	-	1	2	2	1	2	3
		C05	-	2	3	1	1	-	-	-	1	1	-	-	2	2
		C06	-	2	3	1	1	2	2	-	1	1	-	-	2	2
		Target		2.2	3	1.4	1	2	2		1.2	1.83	1.5	1	2	2.17

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING																	
R16 CO-PO MATRIX																	
R1631057	Operating System & Linux Programming Lab	C01	Implement various CPU scheduling algorithms(FCFS, Round Robin, SJF, Priority)														
		C02	Implement different file and memory management strategies.														
		C03	Implementation of Page replacement algorithms and Banker’s algorithm for Dead Lock Avoidance														
		C04	Describe basic system environment of LINUX operating system														
		C05	Demonstrate Inter Process Communication Techniques using shared memory.														
		C06	Implement concurrent threads using pthread library														
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
		C01	2	2	1	-	-	-	-	-	-	-	-	-	2	3	
		C02	2	2	2	-	-	-	-	-	-	-	-	-	-	-	
		C03	1	1	-	-	-	-	-	-	-	-	-	-	2	-	
		C04	3	1	1	-	-	-	-	-	-	-	-	-	-	3	
		C05	2	-	-	-	-	-	-	-	-	-	-	-	2	-	
		C06	1	-	-	-	-	-	-	-	-	-	-	-	-	2	
		Target	1.83	1.5	1.33										2	2.67	
R1631058	Database Management System Lab	C01	To create database for user (Creation of Database)														
		C02	To solve various SQL queries for user defined schemas														
		C03	To generalize PL/ SQL blocks														
		C04	To interpret the usage of predefined objects.														
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
		C01	1	-	3	-	-	-	-	-	-	-	-	-	3	2	
		C02	3	2	1	1	-	-	-	-	-	-	-	-	1	3	
		C03	2	1	1	-	-	-	-	-	-	-	-	-	1	-	
		C04	2	-	-	-	-	-	-	-	-	-	-	-	1	-	
		Target	2	1.5	1.67	1									1.5	2.5	
		R1632051	Computer Networks	C01	Comprehend the basic computer network architecture like OSI & TCP/IP andterminologies.												
				C02	Comprehend various transmission medium, multiplexing and switching techniques.												
				C03	Interpret various Data link layer functionalities & Protocols.												
				C04	Analyze the problems in channel allocation and suggest a MAC layer protocol as solution.												
C05	Interpret different IEEE standards and Architectures in appropriate layers of OSI and TCP/IP.																
C06	Compare different routing, Congestion control protocols and their efficiency.																
C07	Interpret various Transport and Application layer protocols.																
	PO1			PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
C01	3			-	-	-	-	-	-	-	-	-	-	-	1	1	
C02	3			2	-	-	-	-	-	-	-	-	-	-	1	1	
C03	3			2	-	-	-	-	-	-	-	-	-	-	3	2	
C04	2			3	-	-	-	-	-	-	-	-	-	-	1	1	
C05	2			-	-	-	-	-	-	-	-	-	2	2	2	2	
C06	3			2	-	2	-	-	-	-	-	-	2	3	3	3	
C07	2	-	-	-	-	-	-	-	-	-	2	3	2	2			
Target	2.57	2.25		2							2	2		1.71			
R1632052	Data Ware Housing and Mining	C01	Infers about Data Mining & essence of data values.														
		C02	Applies Pre-processing Techniques before Data Mining														
		C03	Infers Classification & recite different approaches														
		C04	Infers Alternative Techniques in Classification														
		C05	Infers Association Analysis & recite different approaches.														
		C06	Infers Cluster Analysis & recite different approaches.														
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
		C01	2	3	--	1	--	2	--	2	--	--	--	--	1	--	
		C02	3	1	--	--	--	--	--	--	--	--	--	--	--	3	
		C03	--	3	1	1	--	3	--	--	--	--	--	--	--	3	
		C04	--	3	1	1	--	3	--	--	--	--	--	--	--	3	
		C05	--	3	1	1	--	3	--	--	--	--	--	--	--	3	
		C06	--	3	1	1	--	3	--	--	--	--	--	--	--	3	
		Target	2.5	2.67	1	1		2.8		2					1	3	

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R16 CO-PO MATRIX																	
R1632057	Software Testing Lab	C01	To Design test cases using White box testing techniques to solve the problems.(C)														
		C02	Take any system and Analyze its system specifications and report the various bugs. (A)														
		C03	Design test cases for any known application (C)														
		C04	Create a test plan document for any application (C)														
		C05	Understand Testing Tool and its implementation like Win Runner and selenium (U)														
		C06	Apply Win Runner and selenium testing tool implementation in any real time applications (AP)														
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
		C01	2	2	2	-	-	-	-	-	2	-	2	-	2	1	
		C02	2	2	2	-	-	-	-	-	2	-	2	-	2	1	
		C03	2	2	2	-	1	-	-	-	2	-	2	-	2	1	
		C04	-	2	2	-	2	-	-	-	2	-	2	-	2	1	
		C05	-	-	-	-	3	-	-	-	2	-	2	-	2	1	
		C06	-	1	1	-	3	-	-	-	2	-	3	-	2	1	
Target	2	1.8	1.8		2.25				2		2.17		2	1			
R1632058	Data Warehousing and Mining Lab	C01	Demonstrates Data Pre-processing Techniques.														
		C02	Demonstrates and Discovers Knowledge using Classification Methods														
		C03	Demonstrates and Discovers Knowledge using Association Methods														
		C04	Demonstrates and Discovers Knowledge using Clustering Methods														
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
		C01	-	3	1	1	-	3	-	-	-	-	-	-	-	3	
		C02	-	3	1	1	-	3	-	-	-	-	-	-	-	3	
		C03	-	3	1	1	-	3	-	-	-	-	-	-	-	3	
		C04	-	3	1	1	-	3	-	-	-	-	-	-	-	3	
		Target		3	1	1		3								3	
		R1641051	Cryptography and Network Security	C01	Identify security threats, services and solve modular and linear congruence equations.												
				C02	Distinguish stream ciphers, block ciphers and Algebraic Structures.												
				C03	Apply number theory in public key cryptographic algorithms.												
C04	Illustrate Hash Algorithms and Digital Signatures for Online Authentication.																
C05	Analyze various mail security protocols and e-commerce transaction protocols.																
C06	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	
C01	3			2	-	2	-	-	-	2	--	-	2	-	1	-	
C02	2			2	1	-	2	-	1	-	-	2	2	-	2	-	
C03	3			2	1	-	1	-	-	3	-	-	-	-	-	3	
C04	2			1	-	-	1	-	-	2	1	1	2	1	2	1	
C05	-			-	-	-	-	-	-	-	-	-	2	2	2	2	
C06	1			-	-	-	2	1	-	3	-	-	2	2	2	2	
Target	2.2	1.75	1	2	1.5	1	1	2.5	1	1.5	2	1.67	1.8	2			
R1641052	Software Architecture & Design Patterns	C01	Understand the architecture, creating it and moving from one to any, different structural patterns.														
		C02	Analyze the architecture and build the system from the components.														
		C03	Design creational patterns.														
		C04	Design structural patterns														
		C05	Learn about behavioural patterns.														
		C06	Do a case study in utilizing architectural structures and design patterns														
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
		C01	3	3	--	--	--	--	--	-	--	--	--	--	3	--	
		C02	2	--	2	-	2	--	--	--	--	--	--	--	2	2	
		C03	2	2	2	2	2	--	--	1	--	--	--	2	2	2	
		C04	1	3	3	-	-	--	--	--	--	--	--	2	2	2	
		C05	2	2	2	2	2	--	--	1	--	--	--	2	2	2	
		C06	2	2	2	2	2	--	--	1	--	--	--	2	2	2	
Target	2	2.4	2.2	2	2			1				2	2.17	2			

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING																
R16 CO-PO MATRIX																
R1641053	Web Technologies	CO1	Understand Basic HTML tags and able to create web pages.													
		CO2	Create web pages using XHTML and Cascading Styles sheets.													
		CO3	Understand web services using AJAX.													
		CO4	Create client-server applications using PHP.													
		CO5	Understand PERL and Ruby programming.													
		CO6	Create web application to access server Database.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		CO1	1	1	1	-	-	-	-	-	-	-	2	3	1	2
		CO2	2	-	1	-	-	-	-	-	-	-	2	2	2	1
		CO3	2	-	2	-	-	-	-	-	-	-	2	2	2	2
		CO4	1	2	1	-	-	-	-	-	-	-	2	3	1	2
		CO5	2	-	2	-	-	-	-	-	-	-	2	2	2	2
		CO6	1	1	2	-	-	-	-	-	-	-	2	3	2	2
		Target	1.5	1.33	1.5								2	2.5	1.67	1.83
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
R164105D	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 COMPUTER SCIENCE AND ENGINEERING																	
R16 CO-PO MATRIX																	
R1641057	Software Architecture & Design Patterns Lab	CO1	Understand interrelationships, principles and guidelines governing architecture and evolution over time														
		CO2	Analyze the architecture and build the system from the components														
		CO3	Prepare creational patterns that deal with object creation mechanisms														
		CO4	Prepare structural patterns that ease the design by identifying a simple way to realize relationships among entities.														
		CO5	Learn behavioural patterns that identify common communication patterns between objects and realize these patterns.														
		CO6	Classify various case studies														
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
		C01	3	2	1	-	-	-	-	-	-	-	-	-	3	2	
		C02	2	3	1	-		-	-	-	-	-	-	-	3	2	
		C03	1	2	3	-	2	-	-	-	-	-	-	-	3	3	
		C04	1	2	3	-	2	-	-	-	-	-	-	-	3	3	
		C05	3	2	1	-	-	-	-	-	-	-	-	-	3	2	
		C06	1	2	3	-	-	-	-	-	-	-	-	-	3	2	
		Target	1.83	2.17	2		2								3	2.33	
R1641058	Web Technologies Lab	CO1	Create web pages using XHTML and Cascading Styles sheets														
		CO2	Build dynamic web pages using Javascript and PHP														
		CO3	Develop web application to access Database														
		CO4	Develop applications through Ruby and PERL														
		CO5	Develop an interactive web application.														
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
		C01	2	1	1	-	-	-	-	-	-	-	2	3	1	1	
		C02	2	-	1	-	-	-	-	-	-	-	2	2	1	2	
		C03	2	-	2	-	-	-	-	-	-	-	2	2	2	2	
		C04	1	2	1	-	-	-	-	-	-	-	2	3	2	2	
		C05	2	-	2	-	-	-	-	-	-	-	2	2	2	2	
		Target	1.8	1.5	1.4								2	2.4	1.6	1.8	
		R1642051	Distributed 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 distributed environment.																
	PO1			PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
C01	2			2	-	3	-	-	-	-	2	-	-	2	2	2	
C02	2			3	-	3	-	-	-	-	2	-	-	2	1	1	
C03	2			2	-	2	-	-	-	-	3	-	-	2	1	3	
C04	2			2	-	3	-	-	-	-	2	-	-	2	3	2	
C05	2			2	-	1	-	-	-	-	2	-	-	2	2	1	
C06	2			1	-	3	-	-	-	-	1	-	-	2	1	2	
Target	2			2		2.5					2			2	1.67	1.83	
R1642052	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	
		C01	-	-	-	-	-	-	-	-	2	2	2	2	-	2	
		C02	-	-	-	-	-	-	-	-		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	Machine Learning	C01	Understand the fundamental issues and challenges of machine learning - data, model, tasks and features.													
		C02	Understand the underlying process of Classification – Linear, Binary and Multi class classifications.													
		C03	Apply concept learning on algorithms like Decision trees, Association rules.													
		C04	Apply linear models like linear regression and distance based models like KNN, SVM for supervised and unsupervised learning problems.													
		C05	Implement ensembling algorithms.													
		C06	Understand concept behind neural networks for learning non-linear functions.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	2	2	-	-	-	-	-	-	-	-	-	1	1	2
		C02	1	2	-	-	-	-	-	-	-	-	-	1	1	2
		C03	2	2	2	-	-	-	-	-	-	-	-	-	1	2
		C04	2	2	2	-	-	-	-	-	-	-	-	-	1	2
		C05	-	2	-	-	-	-	-	-	-	-	-	1	1	2
		C06	1	2	2	-	-	-	-	-	-	-	-	2	1	2
		Target	1.6	2	2									1.25	1	2
R1642058	Elective-III(Artificial Neural Networks)	C01	Illustrate basic neural network architecture													
		C02	Compare different learning algorithms													
		C03	Develop classification algorithms using Preceptron as a patter classifier.													
		C04	Design single and multi-layer feed forward neural networks.													
		C05	Develop radial basis function networks.													
		C06	Design of classification technique by using SVM.													
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
		C01	2	1	1	1	1	1	-	-	-	-	1	1	2	2
		C02	2	2	2	2	2	2	-	-	-	-	1	1	2	2
		C03	2	2	2	2	2	2	-	-	-	-	1	1	2	2
		C04	2	2	2	2	3	2	-	-	-	-	2	-	2	3
		C05	2	2	3	3	2	2	-	-	-	-	2	-	2	3
		C06	2	2	2	2	2	2	-	-	-	-	2	-	3	3
		Target	2	1.83	2	2	2	1.83					1.5	1	2.17	2.5
	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.													
			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	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.													
			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