VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

I B. TECH. I SEM

R13101 — ENGLISH-I

CO1	An ability to improve reading skills and comprehension.
CO2	An ability to improve essential grammar.
CO3	An ability to interact and share views and opinions.
CO4	An ability to improve life skills and core skills.
CO5	An ability to improve vocabulary.
CO6	An ability to write effectively.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	-	-	-	-	-	-	-	2	3	3	-	2	2	-
C02	-	-	-	-	-	-	-	1	2	3	-	2	3	2
C03	-	-	-	-	-	-	-	1	3	2	-	2	3	2
C04	-	-	-	-	-	-	-	2	3	2	-	3	2	2
C05	-	-	-	-	-	-	-	1	2	2	-	3	2	2
C06	-	-	-	-	-	-	-	1	2	3	-	2	2	2
Target								1.33	2.5	2.5		2.33	2.33	2

R13102 — MATHEMATICS-I

CO1	Able to solve first order ordinary Differential equations and their applications.
CO2	Able to solve higher order ordinary differential equations.
CO3	Able to learn Laplace transforms and solve initial value problems in ordinary differential equations using Laplace transforms.
CO4	Able to learn Partial differentiation.
CO5	Able to Solve first order partial differential equations.
CO6	Able to Solve higher order partial differential equations.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	2	1	-	-	-	-	-	2	-	-	-	2	-
C02	2	2	1	-	-	-	-	-	2	-	-	-	3	2
C03	2	1	1	-	-	-	-	-	2	-	-	-	-	-
C04	2	1	2	-	-	-	-	-	2	-	-	-	-	2
C05	2	2	1	-	-	-	-	-	1	-	-	-	3	-
C06	3	2	1	-	-	-	-	-	1	-	-	-	2	1
Target	2.33	1.67	1.17	####	#####	####	####	####	1.67	####	####	#####	2.5	1.67

R13104 — ENGG.CHEMISTRY

CO1	Able to understand the water quality analysis & preparation techniques.
CO2	They gain knowledge about construction & working of storage devices.
CO3	They are well known about corrosion preventive measurements.
CO4	Able to understand the working of IC engines & refining of petrol.
CO5	They gain the knowledge about conducting the polymers & fiber reinforced plastics.
CO6	They are well known about advanced engineering materials like carbon nanotubes, liquid crystals etc.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	2	1	-	-	-	-	-	2	-	-	-	2	-
C02	2	2	1	-	-	-	-	-	2	-	-	-	3	2
C03	2	1	1	-	-	-	-	-	2	-	-	-	-	-
C04	2	1	2	-	-	-	-	-	2	-	-	-	-	2
C05	2	2	1	-	-	-	-	-	1	-	-	-	3	-
C06	3	2	1	-	-	-	-	-	1	-	-	-	2	1
Target	2.33	1.67	1.17	####	#####	####	####	####	1.67	####	####	#####	2.5	1.67

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

R13105 — COMPUTER PROGRAMMING

CO1	Design algorithmic solutions to problems and implementing algorithms in C.
CO2	Illustrate branching, iteration and data representation using arrays.
CO3	Implement modular programming and recursive solution formulation.
CO4	Comprehend pointers and dynamic memory allocation.
CO5	Implement user defined data types like structures and unions in C.
CO6	Comprehend file operations.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	-	3	-	-	-	-	-	-	-	2	-
CO2	1	1	1	-	2	-	-	-	-	-	-	-	2	-
CO3	3	3	2	2	-	-	-	-	-	-	-	-	2	2
CO4	1	2	3	3	-	-	-	-	-	-	-	-	2	2
CO5	3	3	3	3	1	-	-	-	-	-	-	-	2	2
CO6	2	3	3	3	-	-	-	-	-	-	-	-	2	2
Target	2.17	2.33	2.33	2.75	2	####	####	####	####	####	####	#####	2	2

R13106 — ENVIRONMENTAL STUDIES

CO1	Understand the multidisciplinary nature of environmental studies and ecosystems.
CO2	Natural resources and their importance, conservation measures.
CO3	Biodiversity and its conservation practices.
CO4	Various attributes of pollution & its control, solid waste management.
CO5	Social issues both rural & urban, environmental legislation's of India.
CO6	Environmental management- EIA.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1	-	-	-	3	2	2	-	-	-	2	-
CO2	2	2	1	-	-	-	2	3	2	-	-	-	3	2
CO3	2	1	1	-	-	-	2	2	2	-	-	-	-	-
CO4	2	1	2	-	-	-	2	2	2	-	-	-	-	2
CO5	2	2	1	-	-	-	3	3	1	-	-	-	3	-
CO6	3	2	1	-	-	-	2	2	1	-	-	-	2	1
Target	2.33	1.67	1.17	####	#####	####	2.33	2.33	1.67	####	####	#####	2.5	1.67

R13110 — ENGG.MECHANICS

CO1	Able to explain the concepts of force and friction, direction and its application.
CO2	Able to explain the application of free body diagrams. Solution to problems using graphical methods and law of triangle of forces.
CO3	Able to explain the concepts of centre of gravity.
CO4	Able to explain the concepts, moment of inertia and polar moment of inertia including transfer methods and their applications.
CO5	Able to explain the motion in straight line and in curvilinear paths, its velocity and acceleration computation and methods of representing plane motion.
CO6	Able to explain the concepts of work, energy and particle motion Students will acquire ability to apply knowledge of Mechanics.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3	-	2	2	3	-	-	2	-	-	-	2	2
CO2	2	2	-	2	2	3	-	-	3	-	-	-	2	2
CO3	2	2	-	2	2	3	-	-	2	-	-	-	2	2
CO4	3	2	-	2	3	3	-	-	3	-	-	-	2	2
CO5	3	2	-	1	2	2	-	-	3	-	-	-	3	2
CO6	3	3	-	1	1	3	-	-	3	-	-	-	1	1
Target	2.5	2.33	#####	1.67	2	2.83	####	####	2.67	####	####	#####	2	1.83

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

R13111 — ENGLISH COMMUNICATION SKILLS LAB-I

CO1	Ability to analysis a topic of discussion & reading to it.
CO2	Ability to participate in discussion & influence them.
CO3	Ability to communicate ideas effectively.
CO4	Ability to present opinions coherently within a stipulated time.
CO5	Ability to speak clearly & coordinate with them.
CO6	Ability to improve upon English language pronunciation.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	-	-	-	3	2	-	2	2	-
CO2	-	-	-	-	-	-	-	-	2	2	-	2	3	2
CO3	-	-	-	-	-	-	-	-	2	2	-	2	2	2
CO4	-	-	-	-	-	-	-	-	2	2	-	3	2	2
CO5	-	-	-	-	-	-	-	-	2	2	-	2	2	3
CO6	-	-	-	-	-	-	-	-	2	3	-	2	2	2
Target	#####	####	#####	####	#####	####	####	####	2.17	2.17	####	2.17	2.17	2.2

R13115 — ENGG.CHEMISTRY LABORATORY

CO1	Able to understand water quality analysis.
CO2	Able to understand significance of potentiometric &conductometric titrations.
CO3	Able to analyze redoxometric titrations.
CO4	Able to do quality analysis of cool drinks.
CO5	Able to estimate amount of vitamin-c present in capsules.
CO6	Able to determine concentration of unknown solutions by colorimeter.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	2	-	-	-	2	2	-	-	-	-	2	2	2
CO2	1	1	-	-	-	-		-	-	-	-	1	1	-
CO3	1	1	-	-	-	-	1	-	-	-	-	1	-	1
CO4	1	1	-	-	-	-	-	-	-	-	-	1	-	1
CO5	1	2	-	-	-	1	2	-	-	-	-	2	1	2
CO6	1	2	-	-	-	2	2	-	-	-	-	2	1	2
Target	1	1.5	#####	####	#####	1.67	1.75	####	####	####	####	1.5	1.25	1.6

R13116 — C.PROGRAMMING LAB

CO1	Read, understand and trace the execution of programs written in C language.
CO2	Write the C code for a given algorithm over numeric values and mathematical formulae
CO3	Implement Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor
CO4	Implementing modular and recursive programs
CO5	Write programs that perform operations using derived data types
CO6	Implement programs for data transfers between files

	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	3	-	-	-	-	-	-	-	-	2	-
CO4	2	-	2	3	-	-	-	-	-	-	-	-	2	-
CO5	2	2	1	2	-	-	-	-	-	-	-	-	2	-
CO6	2	2	2	-	-	-	-	-	-	-	-	-	2	-
Target	2.17	2.2	2	2.75	#####	####	####	####	####	####	####	#####	2	#####

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

I B. TECH. II SEM

R13201 — ENGLISH-II

CO1	An ability to improve reading skills and comprehension.
CO2	An ability to improve essential grammar.
CO3	An ability to interact and share views and opinions.
CO4	An ability to improve life skills and core skills.
CO5	An ability to improve vocabulary.
CO6	An ability to write effectively.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	-	-	-	-	-	-	-	2	3	3	-	2	2	-
C02	-	-	-	-	-	-	-	1	2	3	-	2	3	2
C03	-	-	-	-	-	-	-	1	3	2	-	2	3	2
C04	-	-	-	-	-	-	-	2	3	2	-	3	2	2
C05	-	-	-	-	-	-	-	1	2	2	-	3	2	2
C06	-	-	-	-	-	-	-	1	2	3	-	2	2	2
Target	#####	####	#####	####	#####	####	####	1.33	2.5	2.5	####	2.33	2.33	2

R13202 — MATHEMATICS-III

CO1	Able to solve system of linear equations using matrices.
CO2	Able to find Eigen values - Eigen vectors.
CO3	Able to evaluate multiple integrals and application of integrals.
CO4	Able to evaluate integrals using special functions.
CO5	Able to understand grad, curl and divergent of scalar and vector point functions.
CO6	Able to understand relation between line, surface and volume integrations.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	2	1	-	-	-	-	-	2	-	-	-	2	-
C02	2	2	1	-	-	-	-	-	2	-	-	-	3	2
C03	2	1	1	-	-	-	-	-	2	-	-	-	-	-
C04	2	1	2	-	-	-	-	-	2	-	-	-	-	2
C05	2	2	1	-	-	-	-	-	1	-	-	-	3	-
C06	3	2	1	-	-	-	-	-	1	-	-	-	2	1
Target	2.33	1.67	1.17	####	#####	####	####	####	1.67	####	####	#####	2.5	1.67

R13203 — ENGG. PHYSICS

CO1	Students Acquire ability to apply knowledge of Physics.
CO2	Students will be able to develop scientific point of view in solving problems.
CO3	Students will be able to design and analyze Laws and Principles of Physics and conduct experiments.
CO4	Students will able to analyze the characteristics and performance of Acoustics& EM fields.
CO5	Students will able to explain the Quantum Mechanics and Electron Theory.
CO6	Students will able to explain the developed and performance of Semiconductor Physics.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	3	1	2	-	-	-	3	-	-	-	-	1	-
C02	2	2	3	2	2	-	-	3	-	-	-	-	1	2
C03	2	2	2	2	2	-	-	2	-	-	-	-	1	2
C04	3	2	3	2	3	-	-	3	-	-	-	-	2	2
C05	3	2	2	1	2	-	-	3	-	-	-	-	3	1
C06	3	3	3	1	1	-	-	3	-	-	-	-	1	1
Target	2.67	2.33	2.33	1.67	2	####	####	2.83	####	####	####	#####	1.5	1.6

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R13 CO-PO MATRIX

R13207 — MATHEMATICS-II (MM)

CO1	Able to find roots of transcendental equations using Numerical methods.
CO2	Able to use interpolation methods.
CO3	Able to use different numerical methods to solve ordinary differential equations.
CO4	Able to find Fourier series for certain functions.
CO5	Able to find Fourier transforms for certain functions.
CO6	Able to solve difference equations using Z transforms.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	-	-	-	-	-	1	-	-	-	2	-
CO2	2	3	1	-	-	-	-	-	1	-	-	-	3	2
CO3	2	2	1	-	-	-	-	-	1	-	-	-	2	2
CO4	2	2	1	-	-	-	-	-	3	-	-	-	3	2
CO5	2	2	3	-	-	-	-	-	3	-	-	-	2	2
CO6	2	2	3	-	-	-	-	-	3	-	-	-	2	2
Target	2.17	2.33	2	####	#####	####	####	####	2	####	####	#####	2.33	2

R13208 — PROFESSIONAL ETHICS & HUMAN VALUES

CO1	Able to introduce the basic philosophy of morals, values and ethics to the students that is relevant to resolving moral issues in engineering
CO2	Able to impart reasoning and analytical skills needed to apply ethical concepts to engineering decisions
CO3	Able to identify the moral issues involved in both management and engineering areas, and to provide an understanding of the interface between social, technological and natural environments
CO4	Able to understand the unethical errors committed by the engineers in the implementation of the engineering projects.
CO5	Able to minimize the occupational crimes in the corporate sector by the budding engineers and make them uncorrupted.
CO6	Able to Focus on intellectual property rights and ethical engineering.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	-	-	1	1	-	-	3	-	-	1	1	2	1
CO2	2	-	-	2	1	-	-	2	-	-	3	2	1	2
CO3	1	-	-	3	1	-	-	2	-	-	1	1	2	1
CO4	2	-	-	1	2	-	-	2	-	-	1	-	-	2
CO5	2	-	-	1	1	-	-	3	-	-	1	1	-	1
CO6	1	-	-	1	2	-	-	3	-	-	1	1	1	2
Target	1.5	####	#####	1.5	1.33	####	####	2.5	####	####	1.33	1.2	1.5	1.5

R13209 — ENGG. DRAWING

CO1	Able to understand different scales used in industry and draw various curves.
CO2	Able to recognize principles of projections to draw orthographic projections.
CO3	Able to interpret the projection principles to draw projections of straight lines.
CO4	Able to understand the various ways to draw projection of planes.
CO5	Able to draw projections of solids by applying principles of orthographic projections and isometric projections
CO6	Able to convert isometric views into orthographic views and orthographic views to isometric views

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	-	-	-	-	-	1	-	-	1	1	-
CO2	3	2	2	-	-	-	-	-	1	-	-	1	1	2
CO3	3	2	2	-	-	-	-	-	1	-	-	1	1	2
CO4	2	2	2	-	-	-	-	-	1	-	-	1	2	2
CO5	2	2	3	-	-	-	-	-	1	-	-	1	3	1
CO6	2	2	3	-	-	-	-	-	1	-	-	1	1	1
Target	2.5	2.17	2.33	####	#####	####	####	####	1	####	####	1	1.5	1.6

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

R13213 — ENGLISH-COMMUNICATION SKILLS LAB-II

CO1	Ability to analysis a topic of discussion & reading to it.
CO2	Ability to participate in discussion & influence them.
CO3	Ability to communicate ideas effectively.
CO4	Ability to present opinions coherently within a stipulated time.
CO5	Ability to speak clearly & coordinate with them.
CO6	Ability to improve upon English language pronunciation.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	-	-	-	-	-	-	-	-	3	3	-	2	2	-
C02	-	-	-	-	-	-	-	-	2	3	-	2	3	2
C03	-	-	-	-	-	-	-	-	3	2	-	2	2	2
C04	-	-	-	-	-	-	-	-	3	2	-	3	2	2
C05	-	-	-	-	-	-	-	-	2	2	-	3	2	2
C06	-	-	-	-	-	-	-	-	2	3	-	2	2	2
Target	#####	####	#####	####	#####	####	####	####	2.5	2.5	####	2.33	2.17	2

R13214 — ENGINEERING PHYSICS LAB

CO1	Able to under stand basic knowledge fphysics &experimental experience like sound, acceleration &time.
CO2	Able to understand basic electronics & experimental experience of electrical circuits.
CO3	Able to understand electromagnetism and experimental experience.
CO4	Able to understand the light properties & experimental experience of interference & diffraction.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	2	1	-	-	-	1	-	1	-	-	-	-	-	1
C02	3	-	3	-	2	2	-	-	-	1	-	-	2	-
C03	3	-	-	-	-	2	-	-	-	1	-	-	1	-
C04	3	1	1	-	-	3	-	-	-	-	-	-	3	2
Target	2.75	1	2	####	2	2	####	1	####	1	####	#####	2	1.5

R13216 — ENGINEERING WORKSHOP & IT WORKSHOP

CO1	To select suitable carpentry tools to prepare different types of joints.
CO2	To identify tools required in the fitting operation to perform joint preparations.
CO3	To understand the process of making different objects with thin sheets using proper tin smithytools.
CO4	To differentiate single phase, 3 phase wiring connections.
CO5	Identify the basic computer peripheral and gain sufficient knowledge on assembling and disassembling aPC.
CO6	Learn the installation procedure of Windows and Linux OS,
CO7	Acquire knowledge on basic networking infrastructure and acquire knowledge on basics of internet and worldwide web.
CO8	Learn productivity tools like Word, Excel and Power point.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	2	-	1	-	-	1	-	1	1	-	1	1	-	-
C02	2	1	-	-	-	1	-	1	1	-	-	-	-	-
C03	2	1	-	-	-	1	-	1	1	-	1	1	-	-
C04	1		-	-	-	1	-	1	1	-	-	-	-	-
C05	2	1	-	-	2	-	-	-	-	2	-	-	1	1
C06	2	2	-	2	2	-	-	-	1	1	-	-	2	2
C07	1	1	1	1	2	-	-	-	1	1	-	-	1	2
C08	1	2	-	-	2	-	-	-	2	2	1	-	-	-
Target	1.63	1.33	1	1.5	2	1	####	1	1.14	1.5	1	1	1.33	1.67

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

II B. TECH. II SEM

RT21034 — MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS

CO1	Introduce Managerial Economics to engineering students, concepts of demand like law determinants.
CO2	Evaluate the student knowledge of production & cost estimation.
CO3	Introduce markets, theory of the firm and pricing policies in different markets.
CO4	To know the different forms of business organization and their merits and demerits of both public and private enterprises.
CO5	Understand the different accounting systems preparation of financial statements.
CO6	Understand the concepts of capital, capitalization techniques used to evaluate capital budgeting.

	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	2.33	2.83	3	2.75	#####	####	####	####	2	####	2	2	3	2.5

RT21042 — DATA STRUCTURES

CO1	Define basic static and dynamic data structures and infer searching and sorting algorithms
CO2	Infer appropriate data structures like stacks or queues in simple programs or program parts
CO3	Demonstrate usage of linked list in real world applications.
CO4	Illustrate binary trees with examples.
CO5	Relate binary trees, Binary search trees, and threaded binary tree.
CO6	Apply algorithms for finding shortest path in graphs.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	2	2	1	1	-	-	-	-	-	-	3	2	1
CO2	3	3	1	1	1	-	-	-	-	-	-	2	2	1
CO3	3	3	2	2	2	-	-	-	-	-	-	2	3	1
CO4	3	3	2	2	2	-	-	-	-	-	-	2	3	2
CO5	2	3	-	2	-	-	-	-	-	-	-	2	1	1
CO6	1	1	-	1	-	-	-	-	-	-	-	1	2	2
Target	2.17	2.5	1.75	1.5	1.5	####	####	####	####	####	####	2	2.17	1.33

RT21051 — OBJECT ORIENTED PROGRAMMING THROUGH C++

CO1	State the concept and underlying principles of OOP and object oriented programming through C++.
CO2	Outline the Basic concept in C++ programming, Operators, control structures , functions, overloading,recursion.
CO3	Design classes, objects and member functions.
CO4	Implement constructors, destructors, variants in them, operator overloading, type conversions.
CO5	Implement inheritance, types of inheritance, polymorphism, virtual functions.
CO6	Develop applications using Files, File operations, generic programming, templates, function templates, Exception handling.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	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	1.5	2.67	2.67	1.67	#####	####	####	####	####	####	####	1.5	2	2

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT21052 — MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

CO1	Define the fundamental discrete mathematical structures.
CO2	Apply logical reasoning to solve a variety of problems.
CO3	Able to Understand the functions concepts and distinguish different types of functions.
CO4	Able to Demonstrate the ability to solve problems using counting techniques and combinatory in the context of discrete probability.
CO5	Exposure of Graphs, their representations, and solve 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

RT21053 — DIGITAL LOGIC DESIGN

CO1	Able to understand the basics of Digital electronics, number systems and digital codes.
CO2	Able to have knowledge of logic gates and Boolean algebra.
CO3	Able to design combinational logic circuits.
CO4	Able to design sequential logic circuits.
CO5	Able to analyze sequential logic circuit implementation in real life situation.
CO6	Able to implement logic functions using programmable logic devices which are used in industries

	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	1
Target	2.17	2	2.67	####	#####	####	####	####	####	####	####	2	2.33	1.17

RT21054 — OBJECT ORIENTED PROGRAMMING LAB

CO1	Implement basic problem solving techniques.
CO2	Build applications using the concept in C++ programming, Operators, control structures, functions, overloading, and recursion.
CO3	Develop C++ codes using Inheritance, virtual functions, templates.

	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	2	-
CO3	-	2	2	2	-	-	-	-	-	-	-	2	2	-
Target	#####	2	2	2	#####	####	####	####	####	####	####	2	2	#####

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT21055 — DATA STRUCTURES LAB

CO1	To define basic static and dynamic data structures and searching and sorting algorithms
CO2	To select appropriate data structures stacks or queues for autonomous realization of simple programs or program parts
CO3	To demonstrate usage of linked list in real world applications.
CO4	To illustrate binary trees with examples.
CO5	To classify binary trees, Binary search trees, threaded binary tree.
CO6	To apply algorithms for finding shortest path in graphs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1	1	-	-	-	-	-	-	-	-	2	2
CO2	3	3	1	-	-	-	-	-	-	-	-	-	3	3
CO3	1	1	3	2	-	-	-	-	-	-	-	-	3	2
CO4	3	1	3	1	3	-	-	-	-	-	-	-	3	2
CO5	1	-	3	3	3	-	-	-	-	-	-	-	3	2
CO6	2	2	2	3	2	-	-	-	-	-	-	-	3	2
Target	2	1.8	2.17	2	2.67	####	####	####	####	####	####	#####	2.83	2.17

RT21056 — DIGITAL LOGIC DESIGN LAB

CO1	Students will have the knowledge of working of logic gates.
CO2	Students will be able to design universal gates and adders using logic gates.
CO3	Students will be able to convert one form of numbers to other.
CO4	Students will be able to analyze the behaviour of multiplexer and demultiplexer.
CO5	Students will be able to understand the behaviour of sequential circuits.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	2	-	-	-	3	-	-	-	-	-	-	1	-
CO2	2	3	1	-	-	-	-	-	-	-	-	-	-	1
CO3	1	2	-	-	-	-	-	-	-	-	-	-	-	1
CO4	2	1	-	-	-	-	-	-	-	-	-	-	-	1
CO5	2	1	-	-	-	-	-	-	-	-	-	-	-	1
Target	1.6	1.8	1	####	#####	3	####	####	####	####	####	#####	1	1

RT21057 — SEMINAR

CO1	Access information in a variety of ways, by using library collections and services and other search tools and databases.
CO2	Demonstrate effective writing skills by employing various techniques of academic writing.
CO3	Understand the role that effective presentations have in public/professional contexts and gain experience in formal/ informal presentation.
CO4	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
CO1	3	2	-	3	-	-	-	-	-	-	-	3	2	2
CO2	-	-	-	-	-	-	-	2	3	3	-	2	-	-
CO3	3	-	-	-	-	-	-	-	-	-	-	2	3	-
CO4	2	-	-	2	2	-	-	-	-	2	-	3	2	-
Target	2.67	2	#####	2.5	2	####	####	2	3	2.5	####	2.5	2.33	2

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

II B. TECH. II SEM

RT22051 — PROBABILITY AND STATISTICS

CO1	Distinguish between random variables pertaining to discrete and continuous distribution system.
CO2	Compute moments and moment generating functions of various distributions.
CO3	Construct the probability distribution of a random variable, based as real-world situation, and are use it to compute mean and variance.
CO4	Apply and analyzing hypothesis testing in structure engineering decision and making problem.
CO5	Design and construct engineering experiments involving single factor and double factor and using ANOVA how to analyzing data.
CO6	Understand the role of statistical tools in quality improvement.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	1	2	1	-	-	-	-	-	-	-	-	-
CO2	3	1	1	-	-	-	-	-	-	-	-	-	-	-
CO3	3	3	3	3	-	-	-	-	-	-	-	-	2	-
CO4	3	2	2	1	-	-	-	-	-	-	-	-	-	3
CO5	3	2	2	3	-	-	-	-	-	-	-	-	-	3
CO6	3	1	1	2	-	-	-	-	-	-	-	-	-	-
Target	3	2	1.67	2.2	1	####	####	####	####	####	####	#####	2	3

RT22052 — JAVA PROGRAMMING

CO1	Understand the concept and underlying principles of OOP.
CO2	Illustrate simple java primitives and problem solving using OOP concept.
CO3	Use of packages, interfaces, exceptions.
CO4	Analyze the behavior of Threads and I/O Stream in java.
CO5	Create events and applications using Applets.
CO6	Constructing simple GUI applications using Frames &JFrames.

	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	2.33	2.83	3	2.75	#####	####	####	####	2	####	2	2	3	2.5

RT22053 — ADVANCED DATA STRUCTURES

CO1	Describe basic operations on Dictionaries and Hashing techniques.
CO2	Analyze balanced tree models
CO3	Illustrate non-linear data structures based on searching operation
CO4	Summarize Binary Heap and its operations.
CO5	Estimate the complexities of various sorting techniques along with their lower bounds
CO6	Summarize basics of Tries and File structure its operations, different pattern matching algorithms

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	2	2	1	1	-	-	-	-	-	-	3	2	2
CO2	3	3	1	1	1	-	-	-	-	-	2	2	2	2
CO3	3	3	2	2	2	-	-	-	-	-	2	2	2	3
CO4	3	3	2	2	2	-	-	-	-	-	2	2	2	3
CO5	2	3	-	2	-	-	-	-	-	-	-	2	2	3
CO6	1	1	-	1	-	-	-	-	-	-	1	1	2	2
Target	2.17	2.5	1.75	1.5	1.5	####	####	####	####	####	1.75	2	2	2.5

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT22054 — COMPUTER ORGANIZATION

CO1	Gives a view of computer system from user's perspective, representation of data.
CO2	Understanding RTL, Micro operations, ALU, Organization of stored program computer, types of instructions and design of basic components of the system.
CO3	Illustration of data paths and control flow for sequencing in CPUs, Microprogramming of control unit of
CO4	Illustration of algorithms for basic arithmetic operations using binary and decimal representation.
CO5	Description of different parameters of a memory system, organization and mapping of various types of
CO6	Describes the means of interaction devices with CPU, their characteristics, modes and introduction multiprocessors.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	1	3	-	-	-	-	-	-	-	-	-	-	1	1
C02	2	-	3	-	-	-	-	-	-	-	-	-	2	2
C03	-	1	-	-	-	-	-	-	-	-	-	-	-	-
C04	2	-	3	-	-	-	-	-	-	-	-	-	2	-
C05	1	1	-	-	-	-	-	-	-	-	-	-	-	2
C06	1	-	2	-	-	-	-	-	-	-	-	-	1	-
Target	1.4	1.67	2.67	####	#####	####	####	####	####	####	####	#####	1.5	1.67

RT22055 — Formal Languages and Automata Theory

CO1	Acquire a fundamental understanding of the core concepts relating to the theory of Computation, formal languages, computational models including decidability and Intractability.
CO2	Apply Fundamental concepts of languages in different areas of Formal Languages and Automata Theory.
CO3	Understand the functioning of Finite-State Machines, Deterministic Finite-State Automata, Nondeterministic Finite-State Automata Pushdown Automata and Turing Machines and able to evaluate
CO4	Analyze the given grammars and automata (recognizers) for different language classes.
CO5	Examine the string and determine the type of a language of the string.
CO6	Understand the functioning of Turing Machines.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	1	2	2	-	-	-	-	-	-	-	-	-	1	-
C02	1	1	1	-	-	-	-	-	-	-	-	-	1	-
C03	-	1	1	-	1	-	-	-	-	-	-	-	-	2
C04	-	1	2	1	-	-	-	-	-	-	-	-	-	2
C05	1	1	-	-	-	-	-	-	-	-	-	-	1	-
C06	1	2	2	1	-	-	-	-	-	-	-	-	-	2
Target	1	1.33	1.6	1	1	####	####	####	####	####	####	#####	1	2

RT22056 — ADVANCED DATA STRUCTURES LAB

CO1	To obtain practical knowledge on the application of dictionaries, trees.
CO2	To formulate new solutions for programming problems or improve existing code using graphs and related algorithms.
CO3	To analyze the complexities in pattern matching algorithms

	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	-	2	-	-	-	-	-	-	-	-	3	3
Target	2	2.67	2	1.67	#####	####	####	####	####	####	####	#####	3	2.33

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT22057 — **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
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

RT22058 — **FREE OPEN SOURCE SOFTWARE(FOSS) LAB**

CO1	Evaluate small programs using commands of Unix.
CO2	Create Shell scripts through various utilities of Unix.
CO3	Use cp, mv, ls commands using various system calls.
CO4	Create shell scripts to implement binary search and bubble sort.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	2	2	1	-	-	-	-	-	-	-	-	-	1	2
C02	-	1	-	3	-	-	-	-	-	-	-	-	1	3
C03	2	2	2	-	-	-	-	-	-	-	-	-	2	-
C04	1	-	2	2	-	-	-	-	-	-	-	-	-	2
Target	1.67	1.67	1.67	2.5	#####	####	####	####	####	####	####	#####	1.33	2.33

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

III B. TECH. I SEM

RT31051 — COMPILER DESIGN

CO1	Describe major concept areas of language translation.
CO2	Illustrate language specifications in the form of regular expressions and context free grammars.
CO3	Produce top down and bottom up parsers for the specific languages.
CO4	Use the powerful compiler generation tools such as LEX and YACC.
CO5	Construct syntax directed definitions for developing intermediate code generators.
CO6	Apply machine dependent and machine independent code optimization techniques.
CO7	Comprehend different techniques involved in producing target code.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1	1	-	-	-	-	-	-	-	-	2	2
CO2	3	3	1	-	-	-	-	-	-	-	-	-	3	3
CO3	1	1	3	2	-	-	-	-	-	-	-	-	3	2
CO4	3	1	3	1	2	-	-	-	-	-	-	-	3	2
CO5	1	-	3	3	2	-	-	-	-	-	-	-	3	2
CO6	2	2	2	3	2	-	-	-	-	-	-	-	3	2
CO7	1	2	-	2	2	-	-	-	-	-	-	-	3	2
Target	1.86	1.83	2.17	2	2	####	####	####	####	####	####	#####	2.86	2.14

RT31052 — DATA COMMUNICATION

CO1	The Student will be able to understand the different communication techniques.
CO2	The Student will be able to have knowledge of networking and different components used.
CO3	The Student will be able to analyze different communication systems.
CO4	The Student will have an idea of relationship of networking and communication.
CO5	The student will know the difference between data and voice communication.
CO6	The student will be able to apply various error detecting and correcting codes in real time applications.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	-	-	1	-	2	-	3	-	-	-	-	1	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	-	1
CO3	3	-	1	-	-	2	-	-	-	-	-	-	1	1
CO4	3	3	1	1	-	3	-	-	-	-	-	-	2	-
CO5	3	3	1	1	-	3	-	-	-	-	-	-	-	-
CO6	3	3	1	1	-	3	-	-	-	-	-	-	-	2
Target	3	2.75	1	1	#####	2.6	####	3	####	####	####	#####	1.33	1.33

RT31053 — PRINCIPLES OF PROGRAMMING LANGUAGES

CO1	Describe syntax and semantics of programming languages.
CO2	Comprehend various programming language constructs.
CO3	Implement Subprograms in various programming languages.
CO4	Apply Object oriented programming concepts, concurrency and event handling programming constructs
CO5	Develop Functional Programming-Developing Programs in Scheme,ML
CO6	Understanding Logic Programming-Programming in Prolog

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	2	2	-	-	-	-	-	-	-	2	2	2
CO2	1	-	2	1	-	-	-	-	-	-	-	2	2	2
CO3	2	1	1	1	-	-	-	-	-	-	-	2	2	2
CO4	2	1	2	2	-	-	-	-	-	-	-	2	2	1
CO5	2	2	2	2	-	-	-	-	-	-	-	2	2	2
CO6	2	2	2	2	-	-	-	-	-	-	-	2	2	2
Target	1.83	1.4	1.83	1.67	#####	####	####	####	####	####	####	2	2	1.83

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT31054 — DATABASE MANAGEMENT SYSTEMS

CO1	Understand the basics of database systems and applications.
CO2	Distinguish various data models required for a database system.
CO3	Demonstrate relational model practically (Structured Query Language).
CO4	Demonstrate and relate normalization for database design.
CO5	Outline the necessity of transaction processing and concurrency control.
CO6	Understand various file organizations and indexing techniques.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	-	-	-	-	-	3	-	-	-	-	-	1	-
CO2	2	3	1	-	-	-	-	-	-	-	-	-	-	2
CO3	3	2	1	-	3	-	-	-	-	-	-	-	2	3
CO4	3	2	1	-	-	-		-	-	-	-	-	1	3
CO5	1	-	-	-	-	-	-	-	-	-	-	-	1	-
CO6	2	-	-	-	-	-	-	-	-	-	-	-	1	-
Target	2.17	2.33	1	####	3	####	3	####	####	####	####	#####	1.2	2.67

RT31055 — OPERATING SYSTEMS

CO1	Comprehend the basic components of an operating system and their role in implementation of software for different computer architectures.
CO2	Demonstrate the concept of a process, threads and CPU Scheduling algorithms for multitasking.
CO3	Use semaphore concept to provide mutual exclusion in critical section problem.
CO4	Describe various memory management techniques and the concept of virtual memory.
CO5	Describe various methods for handling deadlocks.
CO6	Analyze various file system implementations.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2	-	-	-	-	-	-	-	-	-	2	2
CO2	-	1	2	-	-	-	-	-	-	-	-	-	-	1
CO3	3	2	2	2	-	-	-	-	-	-	-	-	3	2
CO4	-	3	2	-	-	-	-	-	-	-	-	-	-	3
CO5	-	1	1	2	-	-	-	-	-	-	-	-	-	1
CO6	2	1	2	-	-	-	-	-	-	-	-	-	2	1
Target	2.33	1.67	1.83	2	#####	####	####	####	####	####	####	#####	2.33	1.67

RT31059 — SEMINAR

CO1	Access information in a variety of ways, by using library collections and services and other search tools and databases.
CO2	Demonstrate effective writing skills by employing various techniques of academic writing.
CO3	Understand the role that effective presentations have in public/professional contexts and gain experience in formal/ informal presentation.
CO4	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
CO1	3	2	-	3	-	-	-	-	-	-	-	3	2	2
CO2	-	-	-	-	-	-	-	2	3	3	-	2	-	-
CO3	3	-	-	-	-	-	-	-	-		-	2	3	-
CO4	2	-	-	2	2	-	-	-	-	2	-	3	2	-
Target	2.67	2	#####	2.5	2	####	####	2	3	2.5	####	2.5	2.33	2

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT31056 — COMPILER DESIGN LAB

CO1	Implement lexical analyzer for recognizing tokens of a high level programming language.
CO2	Use lexical analyzer generator tools like LEX, JLEX and FLEX.
CO3	Construct FIRST and FOLLOW data structures during syntax analysis.
CO4	Implement a Top down parser for a context free grammar.
CO5	Implement a Bottom up parser for a context free grammar.
CO6	Use code optimization techniques.
CO7	Use the tool YACC to generate the abstract syntax tree and also analyze code generation.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1	1	-	-	-	-	-	-	-	-	2	2
CO2	3	3	1	-	-	-	-	-	-	-	-	-	3	2
CO3	1	1	3	2	-	-	-	-	-	-	-	-	3	2
CO4	3	1	3	1	3	-	-	-	-	-	-	-	3	2
CO5	1	-	3	3	3	-	-	-	-	-	-	-	3	2
CO6	2	2	2	3	2	-	-	-	-	-	-	-	3	2
CO7	1	2	-	2	3	-	-	-	-	-	-	-	3	2
Target	1.86	1.83	2.17	2	2.75	####	####	####	####	####	####	#####	2.86	2

RT31057 — OPERATING SYSTEM & LINUX PROGRAMMING LAB

CO1	Implement various CPU scheduling algorithms(FCFS, Round Robin, SJF, Priority)
CO2	Implement different file and memory management system calls.
CO3	Simulation of Banker's and page replacement algorithms
CO4	Describe basic system environment of LINUX operating system
CO5	Demonstrate Inter Process Communication Techniques using shared memory.
CO6	Implement concurrent threads using pthread library

	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	2.25	1.5	2.25	####	#####	####	####	####	####	####	####	#####	2	2.67

RT31058 — DATABASE MANAGEMENT SYSTEMS LAB

CO1	Creates database for user (Creation of Database)
CO2	Solve various SQL queries for user defined schemas
CO3	GeneralizePL/SQLblocks.
CO4	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

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

III B. TECH. II SEM

RT32051 — SOFTWARE ENGINEERING

CO1	Understand basic software engineering methods, processes and process models. Given a project he/she will be able to compare and choose a suitable process model.
CO2	Produce a SRS document for a given problem by gathering, organizing and validating software specifications.
CO3	Apply a design and architectural elements that solves a given problem in the domain of computing. He/she will be able to choose a suitable architecture for a given project.
CO4	Understand and apply coding principles. Given a piece of code he/she will be able to Construct test
CO5	Understand how to work with a team. Given a software project and function points, he/she will be able to estimate size, effort, cost and time taken for a project.
CO6	Understand software quality factors and its role in the industry of software engineering, he/she also will be able to illustrate various maintenance process models in the field of software engineering.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	3	-	-	-	-	-	-	2	2	-	2	-	1
C02	2	2	2	-	-	-	-	-	2	2	-	2	3	2
C03	2	2	3	2	1	-	-	-	2	2	-	-	1	1
C04	-	2	2	-	-	-	-	-	2	2	-	-	3	3
C05	2	2	-	-	-	-	-	-	3	-	-	-	2	-
C06	2	-	-	-	-	-	-	3		-	3	-		1
Target	2.2	2.2	2.33	2	1	####	####	3	2.2	2	3	2	2.25	1.6

RT32052 — DATA WARE HOUSING AND MINING

CO1	Infers about Data Warehouse & why Data Warehouse is imperative over Traditional Databases.
CO2	Apply Pre-processing Techniques before Data Mining.
CO3	Infer Data Warehouse : Architecture & Implementation
CO4	Infer Classification & recite different approaches.
CO5	Infer Association Analysis & recite different approaches.
CO6	Infer Cluster Analysis & recite different approaches.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	2	-	-	1	-	2	-	3	-	-	-	-	1	-
C02	3	1	-	-	-	-	-	-	-	-	-	-	-	3
C03	2	-	1	-	-	2	-	-	-	-	-	-	1	-
C04	-	3	1	1	-	3	-	-	-	-	-	-	-	3
C05	-	3	1	1	-	3	-	-	-	-	-	-	-	3
C06	-	3	1	1	-	3	-	-	-	-	-	-	-	3
Target	2.33	2.5	1	1	#####	2.6	####	3	####	####	####	#####	1	3

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT32053 — COMPUTER NETWORKS

CO1	Comprehend the basic computer network architecture, terminology and example networks.
CO2	Compare various transmission medium, multiplexing and switching techniques.
CO3	Interpret various Datalink layer functionalities & Protocols.
CO4	Examine the problems in channel allocation and suggest a MAC layer protocol as solution.
CO5	Compare different routing protocols and their efficiency.
CO6	Interpret different IEEE standards and Architectures in appropriate layers of OSI and TCP/IP.
CO7	Generalize different Application layer protocols with real world applications.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	-	-	-	-	-	-	-	-	-	-	-	1	2
C02	3	1	-	-	-	-	-	-	-	-	-	-	1	1
C03	3	2	-	-	-	-	-	-	-	-	-	-	3	2
C04	2	3	-	-	-	-	-	-	-	-	-	-	1	1
C05	3	2	-	2	-	-	-	-	-	-	-	2	3	3
C06	2	-	-	-	-	-	-	-	-	-	-	2	2	2
C07	2	-	-	-	-	-	-	-	-	-	-	2	3	2
Target	2.57	2	#####	2	#####	####	####	####	####	####	####	2	2	1.86

RT32054 — DESIGN AND ANALYSIS OF ALGORITHMS

CO1	Infer asymptotic notations and analyze worst-case running times of algorithms.
CO2	Infer amortized analysis and different methods (aggregate analysis, accounting and potential method).
CO3	Infer the divide-and-conquer paradigm and its context. Recite algorithms that employ this paradigm. Apply this paradigm to design algorithms for apt problems. Derive and solve recurrences describing the performance of divide-and-conquer algorithms.
CO4	Infer the greedy paradigm and its context. Recite algorithms that employ this paradigm. Apply this paradigm to design algorithms for apt problems.
CO5	Infer the dynamic-programming paradigm and its context. Recite algorithms that employ this paradigm. Apply this paradigm to design algorithms for apt problems.
CO6	Infer the backtracking paradigm and its context. Recite algorithms that employ this paradigm. Apply this paradigm to design algorithms for apt problems.
CO7	Infer the branch and bound paradigm and its context. Recite algorithms that employ this paradigm. Apply this paradigm to design algorithms for apt problems.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	2	-	1	-	-	-	-	-	-	-	-	3	-
C02	2	3	-	-	-	-	-	-	-	-	-	-	1	3
C03	-	2	1	-	-	-	-	-	-	-	-	2	3	-
C04	3	-	-	-	-	-	-	-	-	-	-	2	-	3
C05	2	3	-	3	-	-	-	-	-	-	-	-	3	1
C06	-	2	3	3	-	-	-	-	-	-	-	2	-	2
C07	3	-	3	1	-	-	-	-	-	-	-	-	3	3
Target	2.6	2.4	2.33	2	#####	####	####	####	####	####	####	2	2.6	2.4

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT32055 — 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

RT32056 — IPR AND PATENTS

CO1	Understanding, defining and differentiating different types of intellectual properties (IPs) and their roles in contributing to organizational competitiveness.
CO2	Understanding the Framework of Strategic Management of Intellectual Property.
CO3	Identify different types of Intellectual Properties (IPs), the right of ownership, scope of protection as well as the ways to create and to extract value from IP.
CO4	Recognize the crucial role of IP in organizations of different industrial sectors for the purposes of product and technology development.
CO5	Identify activities and constitute IP infringements and the remedies available to the IP owner and describe the precautious steps to be taken to prevent infringement of proprietary rights in products and
CO6	Understanding, Identify various cybercrimes in online networks

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	2	3	2	2	2	3	-	2	2	2	-	1	2
CO2	-	2	3	1	2	2	2	-	2	2	2	-	2	2
CO3	-	1	2	-	3	3	2	-	2	2	3	-	1	-
CO4	1	3	3	2	2	2	3	-	-	2	2	-	2	3
CO5	-	-	3	-	2	-	-	-	2	-	2	-	-	2
CO6	-	2	2	-	-	2	-	-	2	2	-	-	2	1
Target	1	2	2.67	1.67	2.2	2.2	2.5	####	2	2	2.2	#####	1.6	2

RT32057 — COMPUTER NETWORKS AND NETWORK PROGRAMMING LAB

CO1	Apply the knowledge of computer networks concepts to develop a simulation of concepts like character stuffing, bit stuffing, CRC and network protocols.
CO2	Apply the knowledge of IPC to develop programs using Unix and socket programming.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	3	2	-	-	-	-	-	-	-	-	2	1
CO2	2	2	3	-	2	-	-	-	-	-	-	-	3	3
Target	2	2	3	2	2	####	####	####	####	####	####	#####	2.5	2

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT32058 — SOFTWARE ENGINEERING LAB

CO1	Apply requirement gathering techniques to create SRS for a defined problem
CO2	Apply the cost, size, effort estimation techniques and estimate cost, size, effort and time of a given project in the domain of software engineering.
CO3	Evaluate the risk for a given software project by applying Risk Assessment strategies like RMMM
CO4	Solve a real world problem by drawing structured and object oriented models by using modern tools such as VP UML and Star UML.
CO5	Construct test cases based on functional requirements and modular design (class diagrams).
CO6	Conduct and participate in FTRs to evaluate the progress of a given software project. This requires team effort.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	2	3	3	-	-	-	-	-	-	2	-	-	3	1
C02	2	2	2	-	-	-	-	-	-	-	-	-	-	-
C03	-	1	-	-	-	-	-	-	-	-	3	-	-	-
C04	2	-	2	1	3	-	-	-	-	-	-	-	3	2
C05	2	2	2	-	-	-	-	-	-	-	-	-	2	3
C06	-	-	-	-	-	-	-	-	3	3	-	-	-	1
Target	2	2	2.25	1	3	####	####	####	3	2.5	3	#####	2.67	1.75

RT32059 — 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

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

IV B. TECH. I SEM

RT41051 — CRYPTOGRAPHY AND NETWORK SECURITY

CO1	Identify security threats, hijacking methods and solve cryptographic algorithms.
CO2	Distinguish stream ciphers, block ciphers and can design a new algorithm.
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	--	-	2	-	2	2
CO2	2	2	1	-	2	-	1	-	-	2	2	-	2	3
CO3	3	2	1	-	1	-	-	3	-	-	-	-	2	3
CO4	2	1	-	-	1	-	-	2	1	1	2	1	2	3
CO5	2	2	-	-	-	-	-	1	3	2	2	-	2	2
CO6	1	-	-	-	2	1	-	3	-	-	2	2	2	2
Target	2.17	1.8	1	2	1.5	1	1	2.2	2	1.67	2	1.5	2	2.5

RT41052 — UML AND DESIGN PATTERNS

CO1	State the fundamental concepts and Common uses of object- oriented model [Remembering]
CO2	Analyze the process of capturing software requirements and specifications using different models [Analyze]
CO3	Construct Design documentation, outlining the testable and complete design of a simple program [Create]
CO4	Use Patterns in their own designs for simple programs [Apply]
CO5	Solve various behavioral & architectural modeling issues related to a system [Apply]
CO6	Propose structural, behavioral & Architectural Refinement by considering various advanced features of modeling for mitigating the risks in a project under social context [Create]

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	2	3	2	-	-	-	-	-	1	-	-	2	2
CO2	-	2	3	2	-	-	-	-	1	3	-	-	2	2
CO3	-	-	3	-	1	-	-	-	2	3	1	-	2	2
CO4	-	3	3	1	1	-	-	-	1	2	2	1	2	3
CO5	-	2	3	1	1	-	-	-	1	1	-	-	2	2
CO6	-	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

RT41053 — 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	2.67	1.8	1.2	####	#####	####	####	####	####	####	####	1.5	2	1.6

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT4105B — **HADOOP AND BIG DATA**

CO1	Define java concepts in the development of MapReduce programming.
CO2	Infer the architecture of HDFS and MapReduce programming
CO3	Creating Mapeduceapplications.
CO4	Interpret MapReduce components.
CO5	Creat applications for Data Analytics in PIG.
CO6	Demonstrate data summarization,query, and analysis in HIVE.

	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

RT41054 — **SOFTWARE TESTING METHODOLOGIES**

CO1	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.
CO2	Discover the needs of Software Testing Automation and ability to use Existing test tools to support test automation.
CO3	Understand and identify various software testing problems, and solve them by designing and selecting software test models, criteria, strategies, and methods.
CO4	Use Various Communication methods and skills to communicate with their teammates to conduct their practice-oriented software testing projects.
CO5	Understand basic knowledge of contemporary issues in software testing, such as component based testing.
CO6	Apply Software testing knowledge and engineering methods to understand and identify various software testing problems, software testing methods and modern tools for testing their own Project.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	2	2	2	-	-	-	-	-	-	-	-	-	2	-
C02	-	-	2	-	3	-	-	-	2	-	-	-	2	1
C03	2	2	2	2	-	-	-	-	-	-	-	-	2	-
C04	-	-	-	-	-	-	-	-	2	2	-	-	2	-
C05	2	2	-	-	-	-	-	-	-	-	-	2	1	-
C06	-	2	2	2	2	-	-	-	2	1	2	-	2	2
Target	2	2	2	2	2.5	####	####	####	2	1.5	2	2	1.83	1.5

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT4105L — **UML AND DESIGN PATTERNS LAB**

CO1	Comprehend the industry standard process including Rational unified process
CO2	Persuade him/herself to design a software development process the fits the complexity of solving projects
CO3	Apply design patterns to refine models.
CO4	Differentiate how the object-oriented approach differs from the traditional approach to systems analysis and design.
CO5	Recognize the difference between various object relationships: inheritance, association, whole-part, and dependency relationships.
CO6	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

RT4105M — **MOBILE APPLICATION DEVELOPMENT LAB**

CO1	Design User Interface and develop activity using J2ME
CO2	Design J2ME applications to analyze and validate user input data.
CO3	Develop network and database applications using J2ME.
CO4	Design User Interface and develop activity for Android App
CO5	Design and develop applications using various layouts in Android App.
CO6	Develop Android App to communicate between app components using Intent

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	3	3	3	-	2	-	-	-	-	-	-	2	3	3
C02	3	3	3	-	2	-	-	-	-	-	-	2	3	3
C03	3	3	3	-	2	-	-	-	-	-	-	2	3	3
C04	3	3	3	-	2	-	-	-	-	-	-	2	3	3
C05	3	3	3	-	2	-	-	-	-	-	-	2	3	3
C06	3	3	3	-	2	-	-	-	-	-	-	2	3	3
Target	3	3	3	####	2	####	####	####	####	####	####	2	3	3

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT4105N — **SOFTWARE TESTING LAB**

CO1	Apply Ad-hoc test cases to test the system.
CO2	Design test cases using Black box testing techniques to solve the problems.
CO3	Design test cases using White box testing techniques to solve the problems.
CO4	Design test cases in Unit Testing using JUNIT.
CO5	Solve Testing Problems using modern tools like Selenium.
CO6	Use existing online resources to test the web pages and websites.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	2	3	-	-	-	-	-	-	-	-	-	-	2	1
C02	2	2	2	1	-	-	-	-	2	1	2	-	2	1
C03	2	2	2	1	-	-	-	-	2	1	2	-	2	1
C04	2	2	2	1	3	-	-	-	2	1	2	-	2	1
C05	2	2	2	1	3	-	-	-	2	1	2	-	2	1
C06	2	2	2	1	3	-	-	-	2	1	2	-	2	1
Target	2	2.17	2	1	3	####	####	####	2	1	2	#####	2	1

RT4105O — **HADOOP AND BIGDATA LAB**

CO1	Implement different data structures in java.
CO2	Comprehend how to install Hadoop .
CO3	Comprehend how to work with HDFS.
CO4	Develop program in Map Reduce style.
CO5	Analyse data sets in PIG.
CO6	Analyse data sets in HIVE.

	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

R13 CO-PO MATRIX

IV B.TECH. II SEM

RT42051 — DISTRIBUTED SYSTEMS

CO1	Describe the basics of distributed systems and architectural models.
CO2	Analyze inter-process communication in a distributed environment.
CO3	Comprehend various distributed objects and remote invocations.
CO4	Describe how various operating systems support middleware, in a distributed environment.
CO5	Interpret different distributed file systems, their coordination and agreement.
CO6	Interpret different transaction and replication models.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	2	2	-	3	-	-	-	-	2	-	-	2	3	-
C02	2	3	-	3	-	-	-	-	2	-	-	2	2	2
C03	2	2	-	2	-	-	-	-	3	-	-	2	1	2
C04	2	2	-	3	-	-	-	-	2	-	-	2	2	2
C05	2	2	-	1	-	-	-	-	2	-	-	2	1	1
C06	2	1	-	3	-	-	-	-	1	-	-	2	2	2
Target	2	2	#####	2.5	#####	####	####	####	2	####	####	2	1.83	1.8

RT42052 — MANAGEMENT SCIENCE

CO1	Apply Management Techniques and Strategies to understand and identify various Business Administrative problems.
CO2	Design and Conduct a work study and apply the Statistical Quality control charts for testing the efficiency of the production and the quality of the products and also applying Materials management techniques to reduce the financial burden for the organization.
CO3	Discover the need of HRM functions to motivate the employees to achieve their stipulated work targets and the application of the Job Evaluation and Merit Rating techniques to properly reward the employee performance and also understand the need of marketing strategies to promote the products in the competitive markets.
CO4	Understand and identify various Networking techniques to save the time duration in software development projects and apply the CPM & PERT analysis to ascertain the probability of completing the project within a given time period.
CO5	Use Various Business Strategies and Corporate planning process to attain the Vision and Mission of the organization. Analyze the organizational strength by applying SWOT scanning methods.
CO6	Apply various contemporary management practices like ERP,BPO, TQM and JIT to achieve the quality and benchmarking the standards with improved business process and Re-Engineering techniques.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	2	2	-	-	-	-	-	-	-	-	-	-	1	2
C02	2	2	2	-	2	-	-	1	2	1	2	-	2	2
C03	2	1	-	-	3	-	-	-	-	-	-	-	1	2
C04	-	2	3	-	2	-	-	-	2	2	2	-	1	3
C05	2	2	-	-	-	-	-	1	3	2	2	-	1	3
C06	1	1	-	-	-	-	-	-	-	-	-	-	1	1
Target	1.8	1.67	2.5	####	2.33	####	####	1	2.33	1.67	2	#####	1.17	2.17

VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

R13 CO-PO MATRIX

RT42053A — HUMAN COMPUTER INTERACTION

CO1	Expalin the capabilities of both humans and computers from the viewpoint of human information processing. And will be able to Describe typical Human-Computer Interaction (HCI) models, Styles and various historic HCI Paradigms.
CO2	Apply an interactive design process and universal design principles to designing HCI systems.
CO3	Describe and use HCI design principles, standards and guidelines.
CO4	Analyze and identify user models, user support, socio-organizational issues, and stakeholder requirements of HCI systems.
CO5	Discuss tasks and dialogs of relevant HCI systems based on task analysis and dialog design.
CO6	Describe the Software engineering aspects of HCI besides implementation. And will be able to explain techniques and theory for searching and visualization.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	1	-	-	2	1	-	-	-	-	-	2	2
CO2	2	2	2	-	-	1	-	-	1	1	2	-	2	2
CO3	2	-	-	-	-	-	-	-	-	-	-		2	3
CO4	2	1	1	-	-	2	1	-	-	-	-	-	1	2
CO5	2	1	1	-	-	1	-	-	-	-	-	-	1	1
CO6	2	1	2	-	-	1	-	-	-	-	-	-	1	2
Target	2	1.2	1.4	####	#####	1.4	1	####	1	1	2	#####	1.5	2

RT42043E — CLOUD COMPUTING

CO1	Describe the key dimensions of the challenges of cloud computing.
CO2	Analyze the economics, financial and technological implications for selecting cloud computing for own organization.
CO3	Analyze the financial, technological and organizational capacity of employer's for actively initiating and installing cloud based applications.
CO4	Evaluate of own organizations needs for capacity building and training in cloud computing related IT areas.
CO5	Describe about the cloud resource management and various scheduling in the cloud.
CO6	Outline about the storage concepts in Cloud.

	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
CO4	2	1	1	-	-	-	-	-	-	-	-	-	1	-
CO5	1	1	-	-	-	-	-	-	-	-	-	-	-	1
CO6	2	2	1	-	1	-	-	-	-	-	-	-	-	1
Target	1.67	1.5	1.25	####	1	####	1	####	####	####	####	#####	1	1

RT42055 — PROJECT

CO1	Able to collaborate with team members in analyzing the requirements of the project to be developed.
CO2	Able to generate necessary design specifications and documents for the chosen project.
CO3	Able to gain proper domain and language knowledge to implement/code the application.
CO4	Able to test and deploy the project after implementation.
CO5	Able to demonstrate the project comprehensively with necessary tools.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	3	3	2	3	2	3	2	2	2	3	-
CO2	1	3	3	2	2	-	3	-	-	3	3	3	3	2
CO3	1	3	2	2	-	-	3	-	2	3	1	1	2	3
CO4	-	3	3	2	1	1	2	-	1	1	2	-	2	2
CO5	-	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