R13 GRAND CO-PO-PSO MATRIX

R13101 — ENGLISH-I

CO1	An ability to read and comprehend English stories and texts
CO2	ability to improve listening skills particularly related to technical English and to improve life skills
CO3	An ability to critically respond in English to a real life situations and to speak in English without inhibition and grammar
CO4	An ability to improve essential grammar necessary for English communication and to write effectively using appropriate format
CO5	An ability to expand vocabulary range and use it effectively and respond to real life situations and An ability to transfer verbal information into nonverbal information and vice versa
CO6	An ability to improve life skills and core skills necessary for effective communication

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

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
CO1	3	2	1						3				2	
CO2	3	3	3						3				3	2
CO3	2	3	3						2					
CO4	3	3	2						3					2
CO5	3	3	3						2				3	
CO6	3	2	1						2				2	1

R13104 — ENGG.CHEMISTRY

CO1	Able to know about water used in industries (boilers etc.)and for drinking purposes and Apply modern methods of softening of hard water to avoid boiler troubles ,construction and working of lime soda process
CO2	Understanding the principles, Construction and working of galvanic cells, electrode potentials, concentration cells , rechargeable batteries and Analyze various types of fuel cells
CO3	Apply the knowledge of electro chemistry to corrosion, distinguish various types of corrosions and able to solve corrosion problems
CO4	Able to explain about synthesis, physical and mechanical properties, compounding and reframing & fabrication of polymers, plastics and elastomers and Applications of fibre reinforced polymers along with conducting polymers
CO5	Recognize specific characteristic properties of fuels including calorific value determination , Ranking and Analysis of coal by proximate and ultimate method
CO6	Use of advanced materials i.e.nano materials,liquid crystals, super conductors and Illustrate the applications of cleaner and greener synthetic methods adapt in industries for healthy living

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

R13105 — COMPUTER PROGRAMMING

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

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

CO1	Able to Understand The concepts of the ecosystem
CO2	Able to Understand The natural resources and their importance

R13106 ENVIRONMENTAL STUDIES

CO3	Able to learn The biodiversity of India and the threats to biodiversity ,and Apply conservation practices
CO4	Able to learn Various attributes of the pollution and their impacts
CO5	Able to Understand Social issues both rural and urban environment
CO6	Able to Understand About environmental Impact assessment and Evaluate the stages involved in EIA

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

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
CO3	graphical methods and law of triangle of forces.
CO4	Able to explain the concepts of centre of gravity.
CO5	Able to explain the concepts, moment of inertia and polar moment of inertia including
CO6	transfer methods and their applications.

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

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						2		2	3	3		3	2	
CO2						2		2	3	3		3	3	2
CO3						2		2	3	3		3		
CO4						2		2	3	3		3		2
CO5						2		2	3	3		3	3	

E	CO6						2		2	3	3		3	2	1

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	3		3		1			3	3	3	1	3	2	
CO2	3		3		2			3	3	3	2	3	3	2
CO3	2		3		2			3	3	2	2	2		
CO4	3		2		1			3	3	1	2	3		2
CO5	3		3		1			3	3	2	1	3	3	
CO6	3		3		1			3	2	1	2	3	2	1

R13116 — C.PROGRAMMING LAB

CO1	Able to Design solutions to the various problems in the field of computerscience.
CO2	Able to Implement the concepts of arrays and strings.
CO3	Ability to Analyze the concepts of modular programming and develop solutions.
CO4	Able to Implement Programs with pointers and comprehend the dynamic memory allocation functions.
CO5	Able to Develop programs that perform operations using derived data types
CO6	Able to Implement programs for data transfers between files

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

ENGLISH-II

CO1	An ability to read and comprehend English stories and texts
CO2	ability to improve listening skills particularly related to technical English and to improve life skills
CO3	An ability to critically respond in English to a real life situations and to speak in English without inhibition and grammar
CO4	An ability to improve essential grammar necessary for English communication and to write effectively using appropriate format

R13201	CO5	An ability to expand vocabulary range and use it effectively and respond to real life situations
	CO6	An ability to improve life skills and core skills necessary for effective communication

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

R13202 MATHEMATICS-III	CO1	An Ability to Solve the system of linear equations and Analyse their applications.
	CO2	An Ability to Compute an Eigen values and eigen vectors
	CO3	Evaluate double and Triple integrals and Apply to find surface area and volumes of solids.
	CO4	Able to Compare definite integral with special functions
	CO5	Able to Differentiate the scalar and vector functions.
	CO6	Able to Understand line, surface and volume integrals and Establish vector integral theorems.

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

R13203 ENGG. PHYSICS	CO1	Able to Design an instrument to enhance the resolution for its operation and Application in physical Optics.
	CO2	Able to Understand the concepts of Lasers as Non-linear coherent sources and the structure property relationship for materials.
	CO3	Able to Understand the concepts of Magnetic, Dielectric and Superconducting properties and their Applications in various fields.
	CO4	Able to Know the Designing aspects of Buildings using the concepts of acoustics and the Computation of velocity of EM waves.
	CO5	Able to Understand the Classical and Quantum aspects of sub-atomic world dominated by electron and its presence and the formation of energy bands in solids using Band- Theory.

EN

CO6	Able to Know the Classification of Semiconductors and Apply their concepts in electronic transport Mechanism for LEDs, Photo conductors and solar cells.

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

R13207

MATHEMATICS-II (MM)

CO1	Appropriate Numerical methods to find roots of algebraic & transcendental equations
CO2	Able to Understand the interpolation and extrapolation techniques
CO3	Able to Apply different numerical methods to Solve differential equations.
CO4	Interpret Fourier series analysis which is central to many applications in engineering apart
CO5	Able to Apply Fourier transforms to Evaluate improper integrals
CO6	Able to Solve the discrete model problems using Z-transforms

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

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	1		2
CO5	2			1	1			3			1	1		1
CO6	1			1	2			3			1	1	1	2

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

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
CO1						2		2	3	3		3	2	
CO2						2		2	3	3		3	3	2
CO3						2		2	3	3		3		
CO4						2		2	3	3		3		2
CO5						2		2	3	3		3	3	
CO6						2		2	3	3		3	2	1

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.

R13214 ENGINEERING PHYSICS LAB

CO3	Able to understand electromagnetism and experimental experience.
CO4	Able to understand the light properties & experimental experience of interference & diffraction.
CO5	Able to understand basic electronics & experimental experience of electrical circuits.
CO6	Able to understand electromagnetism and experimental experience.

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

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, Acquire knowledge on basic networking infrastructure and acquire knowledge on basics of internet and worldwide web.

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

ANCIAL ANALYSIS

CO1	Able to Introduce Managerial Economics to engineering students, concepts of demand like law determinants.
CO2	Able to evaluate the student knowledge of production & cost estimation.
CO3	Able to introduce markets, theory of the firm and pricing policies in different markets.
CO4	Able to know the different forms of business organization and their merits and demerits of both public and private enterprises.

RT21034 MANAGERIAL ECONOMICS & FIN

CO5	Able to understand the different accounting systems preparation of financial statements.
CO6	Able to 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	2	1										1	2	1
CO2	2	2	2									1	2	2
CO3	1	2	2	1								1	2	1
CO4	1	2	2	2								1	2	2
CO5	1	2	2	2					1		1	1	2	1
CO6	1	2	2	2					1		1	1	2	2

RT21042 DATA STRUCTURES

CO1	Able to Define basic static and dynamic data structures and infer searching and sorting algorithms
CO2	Able toInfer 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	2	3	2	2									**2**	
CO2	2	2	3											**2**
CO3		2		2	2							3	**2**	
CO4	2	2			2							2		
CO5		2										2	**2**	
CO6	2			2								3		**2**

RT21051 ENTED 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	Able to Design classes, objects and member functions.
CO4	Able to Implement constructors, destructors, variants in them, operator overloading, type conversions.
CO5	Able to Implement inheritance, types of inheritance, polymorphism, virtual functions.
CO6	Able to Develop applications using Files, File operations, generic programming, templates, function templates, Exception handling.

OBJECT ORIE

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

RT21052 — MATHEMATICAL FOUNDATIONS OF COMPUTER

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,
CO6	Able to solve problems using Graph Theory.

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

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		2	2	2							2	2	2	
CO2		2	2	2							2	2		
CO3		2	2	2							2	2	2	2
CO4		2	2	2							2	2	2	2
CO5		2	2	2							2	2	2	2
CO6		2	2	2							2	2		

AB

CO1	State the concept and underlying principles of OOP and object oriented programming through C++.

RT21054 OBJECT ORIENTED PROGRAMMING L

CO2	Outline the Basic concept in C++ programming, Operators, control structures , functions,
CO3	Able to Design classes, objects and member functions.
CO4	Able to Implement constructors, destructors, variants in them, operator overloading, type
CO5	Able to Implement inheritance, types of inheritance, polymorphism, virtual functions.
CO6	Able to Develop applications using Files, File operations, generic programming, templates,

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

RT21055 DATA STRUCTURES LAB

CO1	Able to write recursive algorithms
CO2	Able to use different sorting techniques
CO3	Able to Select appropriate data structures stacks or queues for autonomous realization of simple programs or program parts.
CO4	Able to demonstrate usage of linked list in real world applications
CO5	Able to illustrate binary trees with examples
CO6	Able to Classify Binary Trees, Binary Search Trees, threaded binary tree.

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

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
CO5	Students will be able to analyze the behaviour of demultiplexer.
CO6	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	

CO1	Access information in a variety of ways, by using library collections and services and other search tools and databases.

RT21057 SEMINAR

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						2				2		2		
CO2						2				2		2		
CO3						2				2		2		
CO4						2				2		2		
CO5						2				2		2		
CO6						2				2		2		

RT22051 PROBABILITY AND STATISTICS

CO1	Able to Distinguish between random variables pertaining to discrete and continuous distribution system.
CO2	Able to Compute moments and moment generating functions of various distributions.
CO3	Able to Construct the probability distribution of a random variable, based as real-world situation, and are use it to compute mean and variance.
CO4	Able to Apply and analyzing hypothesis testing in structure engineering decision and making problem.
CO5	Able to Design and construct engineering experiments involving single factor and double factor and using ANOVA how to analyzing data.
CO6	Able to 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	2	2	2	2									
CO2	3	1	2											
CO3	3	2	2	2									2	
CO4	3	2	2	2										2
CO5	3	2	2	2										2
CO6	3	2	2	2										

T22052 OGRAMMING

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

RT

JAVA PR

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

RT22053

ADVANCED DATA STRUCTURES

CO1	Exposed to various hashing Techniques and skip lists
CO2	Able to implement balanced trees and their operations (AVL & 2-3 trees) .
CO3	Able to compare and contrast between Binomial Heaps and Binomial Queues.
CO4	Able to implement nonlinear data structures Graph algorithms.
CO5	Able to implement and analyze different sorting techniques along with their lower bounds
CO6	Able to understand different pattern matching and tries.

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

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
CO3	types of instructions and design of basic components of the system.
CO4	Illustration of data paths and control flow for sequencing in CPUs, Microprogramming
CO5	of control unit of CPU.
CO6	Illustration of algorithms for basic arithmetic operations using binary and decimal

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

CO1	Able to analyze balanced tree models
CO2	Able to understand Binary Heap and its operations

RT22056 ADVANCED DATA STRUCTURES LAB

CO3	Able to illustrate non-linear data structures based on searching operation
CO4	Able to describe basic operations on Dictionaries and Hashing techniques.
CO5	Able to estimate the complexities of various non-linear data structures
CO6	Able to understand 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		3	2								2		2	2
CO2				2	2						2	3	3	2
CO3			2	2	2							3	2	
CO4				2	2									
CO5		2	3	2	2								2	3
CO6	2		2								2	2		

RT22057 JAVA PROGRAMMING LAB

CO1	Able to Describe the installation process of java application.
CO2	Able to Demonstrate how to write, compile and execute the java programs.
CO3	Able to Develop the knowledge of OOP concepts.
CO4	Able to Use of interfaces, threads and exceptions.
CO5	Able to Use of Applets and events.
CO6	Able to Create a simple GUI based application.

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

RT22058 FREE OPEN SOURCE

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
CO1	2	2	2		2						2	1	2	1
CO2	2	2	3		1						2	2	2	1
CO3	1	1	2		2							1	2	1
CO4	1	1	1		2								2	1

ORS

CO1	To delineate various components of formal languages and grammars, regular expressions and equivalence of finite automata and regular expressions.
CO2	To illustrate grammars and their role in compilers and various parsing techniques Context Free grammars and parsing:
CO3	To describe Syntax trees, its variants, language classifications

RT22121 LANGUAGE PROCESS

CO4	To focus on various storage allocation schemes.
CO5	To enforce various schemes for optimizing code.
CO6	To describe the role of code generator and its design issues Code Generation

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

RT31052 DATA COMMUNICATION

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

RT31054 DATABASE MANAGEMENT SYSTEMS

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

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

CO1	Able to Comprehend the basic components of an operating system and their role in implementation of software for different computer architectures.

RT31055 OPERATING SYSTEMS

CO2	Able to 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	Able to Describe various memory management techniques and the concept of virtual memory.
CO5	Able to Describe various methods for handling deadlocks.
CO6	Able to Analyze various file system implementations.

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

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
C01						2				2		2		
C02						2				2		2		
C03						2				2		2		
C04						2				2		2		
C05						2				2		2		
C06						2				2		2		

T31121 E ENGINEERING

CO1	Knowledge of basic SW engineering methods, processes and their appropriate application
CO2	General understanding and analysis of software process models such as the waterfall and evolutionary models.
CO3	Application of the Project Cost, Effort, Size Estimation techniques and Conducting risk assessment
CO4	Application of requirement gathering methods to create a SRS document for a defined problem
CO5	Understanding of different software architectural styles and applying them to the defined problem.

RT

SOFTWARE

CO6	Analysis of implementation issues such as modularity, coding, testing methods and maintenance of software and its standards

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

RT31123

ADVANCED JAVA

CO1	The student will be able to construct a web application using Servlets.
CO2	The student will be able to construct a web application using Java Server Pages.
CO3	The student will have an ability to construct an enterprise application using Session Beans.
CO4	The student will be able to construct an enterprise application using Entity Beans linked with database.
CO5	The students will be able construct an asynchronous enterprise application using Message-Driven Beans.
CO6	The student will be able to map java inheritance hierarchy with database tables using various mapping techniques.

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

RT31126

ADVANCED JAVA LAB

CO1	The student will be able to establish the connection between client and server.
CO2	The student will be able to connect to database to manipulate data.
CO3	The student will be able to develop web pages using mark up and server side scripting languages.
CO4	The student will be able to perform session tracking and cookies management using Servlets.
CO5	The student will be able to develop simple Java beans with different properties.
CO6	The student will be able to develop enterprise beans.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1		1								2	2
CO2	2	2	2		1								2	2

CO3		1											2	2
CO4		2											2	2
CO5			1											2
CO6	2		2											2

RT31127 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	2	2	3										1	
CO2		2	3											2
CO3	2	2	3										2	2
CO4		2	3										1	3
CO5		2	3										1	
CO6		2	3										1	

RT31128 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.
CO5	Illustrate the usage of user defined packages.
CO6	Compose various user defined objects.

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

RT32052 RE 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
CO1	2			2		2		3					2	

DATA WA														
	CO2	3	2											2
	CO3	2		2			2							3	
	CO4		3	2			3								3
	CO5		3	2			3							3	
	CO6		3		2		3								

RT32053 COMPUTER NETWORKS

CO1	Should be able to understand OSI and TCP/IP models, various topologies and LAN MAN WAN Technologies and example networks
CO2	Should be able to identify characteristics of Transmission Media and Classify various Multiplexing and Switching Techniques
CO3	Should be able to calculate block coding techniques for EDC and ECC along with various data link control protocols
CO4	Should be able to locate the different channel allocation problems, and design various CSMA and controlled Access Protocols and Routing protocols
CO5	Should be able to identify various MAC sub layer protocols in wired and wireless LANs
CO6	Should be able to analyze various application layer protocols for WWW and wireless web

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

RT32054 SIGN AND ANALYSIS OF ALGORITHMS

CO1	Able to understand asymptotic notations/amortized analysis of algorithms.
CO2	Able to understand the divide-and-conquer paradigm and its context. Apply this paradigm to design algorithms for apt problems.
CO3	Able to understand the greedy paradigm and its context. Apply this paradigm to design algorithms for apt problems.
CO4	Able to understand the dynamic-programming paradigm and its context. Apply this paradigm to design algorithms for apt problems.
CO5	Able to understand the backtracking paradigm and its context. Apply this paradigm to design algorithms for apt problems.
CO6	Able to understand the branch and bound paradigm and its context. Apply this paradigm to design algorithms for apt problems.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2

DES														
CO1	2	2		1									2	
CO2		2	1									1	2	
CO3		1	1									2		2
CO4		1	1	2									2	1
CO5		2	2	2								1		2
CO6		1	2	1									2	2

RT32055 — WEB TECHNOLOGIES

CO1	Able to analyze a web page and identify its elements and attributes.
CO2	Able to create web pages using XHTML and Cascading Styles sheets.
CO3	Able to build dynamic web pages.
CO4	Able to build web applications using PHP.
CO5	Able to create programming through PERL and Ruby.
CO6	Able to develop simple client

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

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 technology development
CO6	Understanding, Identify various cybercrimes in online networks

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

CO1	The student will be able to Design and Conduct a Software Test Process for software testing project. i.e., Preparing Test cases and test planning, manage software problems and defects, generate test report. (C)
CO2	The Student will be able to Discover the needs of Software Testing Automation and ability to use Existing test tools to support test automation. (AP).

RT32121 SOFTWARE TESTING

CO3	The Student will have an ability to understand and identify various software testing problems, and solve them by designing and selecting software test models, criteria, strategies, and methods. (AP)
CO4	The student will be able to Use Various Communication methods and skills to communicate with their teammates to conduct their Practice-oriented software testing projects. (AP)
CO5	The students will be able Discuss basic understanding and knowledge of contemporary issues in software testing, such as Component based testing. (U)
CO6	The student will be able to Apply Software testing knowledge and engineering methods to understand and identify various software testing problems and will be able to Apply various software testing methods and modern tools for testing their own Project. (AP).

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

RT32127 COMPUTER NETWORKS AND NETWORK PROGRAMMING

CO1	Should be able toimplement the Data Link Layer framing methods
CO2	Should be able to implement Error Detecting Codes
CO3	Should be able to design network layer routing algorithms.
CO4	Should be able to implement Inter Process Communication using PIPES, FIFOS, Message Queues
CO5	Should be able to design an interactive echo and chat applications using TCP/UDP Socket communication
CO6	Should be able to design Remote Procedure Call establishment to perform the given task

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

LAB

CO1	The student will be able to generate test cases for given applications.
CO2	The student will be able to test the system using various black box testing techniques.
CO3	The student will be able to use Decision table and cause effect graph to generate test cases.
CO4	The student will be able to perform Cyclomatic Complexity analysis.

RT32128 SOFTWARE TESTING

CO5	The student will be able to draw flow graph, DD path graph, also to identify independent paths.
CO6	The student will be able to identify du, dc paths, and to perform mutation testing.

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

RT32129 WEB TECHNOLOGIES LAB

CO1	able to develop webpages
CO2	able to develop dynamic webpages using Javascript
CO3	able to create DTD's , XML schemas
CO4	able to create websites using PHP
CO5	able to develop websites using Ajax and Databases
CO6	

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

RT41051 CRYPTOGRAPHY AND NETWORK SECURITY

CO1	Should be able to identify security threats, hijacking methods and solves cryptic algorithms
CO2	Should be able to distinguish stream ciphers and block ciphers and can design a new algorithm
CO3	Should be able to Apply number theory and applies knowledge in public key cryptographic algorithms
CO4	Should be able to Illustrate Hash Algorithms and digital signatures for online authentication.
CO5	Should be able to Analyze various mail security protocols and e-commerce transaction protocols.
CO6	Should be able to protect his system by understand various password protection mechanisms

	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	3			2							2		2	
CO4			2	2									2	

CO5			2	2							2		2	
CO6			2								2			

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	Employ 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

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

RT4105B — **HADOOP AND BIG DATA**

CO1	Remembering java concepts in the development of MapReduce programming.
CO2	Understand the architecture of HDFS and MapReduce programming
CO3	Creating Mapeduceapplications.
CO4	Understanding MapReduce components.
CO5	Creating applications for Data Analytics in PIG.
CO6	Preparing for 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						2
C02	2	2	2	2	2								2	
C03	1	2	2	2	2		1	1			1	1		1
C04	2	1	1	1	1								1	1
C05	2	2	2	2	2	1	1	1				2	1	1
C06	2	2	2	2	1	1	1	1				2	2	2

RT41121 — **EMBEDDED AND REAL TIME SYSTEMS**

CO1	Should be able to understand the basics of an embedded system
CO2	Should be able to program an embedded system
CO3	Should be able to design, implement and test an embedded system.
CO4	Should be able to identify the unique characteristics of real-time systems
CO5	Should be able to explain the general structure of a real-time system
CO6	Should be able to define the unique design problems and challenges of real-time systems

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

RT4112L — **ML 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

UN														
CO1	1	2	2	1	1	2			1	1			2	1
CO2			2										2	1
CO3		1	1	1							2		2	2
CO4	1	1	2	2	1								2	1
CO5	1	1	1	1	1				2	2			3	1
CO6		2	2	2	2	2			1	3			3	3

RT4112M

MOBILE APPLICATION DEVELOPMENT LAB

CO1	Demonstrate the software setup for creating mobile applications using Java2 Mobile Edition Software on the host Operating System.
CO2	Design and develop new mobile applications using J2ME and Andriod by applying the concepts of wireless application development environment.
CO3	Demonstrate the software setup for creating mobile application using Android Software Development Kit and Android Studio IDE.
CO4	Demonstrate the usage of emulator configuring to a device with variable hardware properties for viewing the output of a mobile application and deploying the same on actual UE.
CO5	
CO6	

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

RT4112N

SOFTWARE ENGINEERING LAB

CO1	Should be able to define and develop a software project from requirement gathering to implementation.
CO2	Should be able to define and develop knowledge about principles of Software engineering.
CO3	Should be able to define and develop knowledge about different practices of software engineering.
CO4	Should be able to focus on the fundamentals of modeling a software project
CO5	Should be able to develop knowledge about estimation of software systems
CO6	Should be able to develop knowledge about maintenance of software systems

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

C05											2		2	
C06											2		2	

RT4112O HADOOP AND BIGDATA LAB

CO1	Able to implement different data structures in java.
CO2	Able to work with HDFS.
CO3	Able to develop program in Map Reduce style .
CO4	Able to analyse on line data sets PIG.
CO5	Able to analyse data in HIVE
CO6	

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

RT42051 DISTRIBUTED SYSTEMS

CO1	Able to explain what a distributed system is, why one would design a system as a distributed system, and what the desired properties of such systems
CO2	Able to describe important characteristics of distributed systems and the salient architectural features of such systems
CO3	Able to analyze inter-process communication in a distributed environment
CO4	Able to describe the features and applications of important standard protocols which are used in distributed systems
CO5	Able to understand the architectures for multithreaded servers
CO6	Able to understand the Transaction Management in the Distributed systems.

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

052 UT SCIENCE

CO1	Should be able to Understanding basics of management & organization.
CO2	Should be able to Remembering principles of management and applying the concepts of work study and SQC to improve productivity
CO3	Should be able to Analyze the functions of HRM and marketing
CO4	Should be able to Applying PERT & CPM techniques to solve project management problems.
CO5	Should be able to Evaluating SWOT Analysis for formulating and implementing strategies.

RT420 MANAGEMEN	CO6	Should be able to Creating awareness about modern or contemporary management practices.

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

RT42053A HUMAN COMPUTER INTERACTION	CO1	infer the capabilities of both humans and computers from the viewpoint of human information processing.
	CO2	Analyze typical human–computer interaction (HCI) models, styles, and various historic HCI paradigms.
	CO3	apply an interactive design process and universal design principles to designing HCI systems.
	CO4	Choose and implement HCI design principles, standards and guidelines.
	CO5	analyze the user models, user support, socio-organizational issues, and stakeholder requirements of HCI systems
	CO6	infer tasks and dialogs of relevant HCI systems based on task analysis and dialog design.

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

RT42121 EMATICAL OPIMIZATION	CO1	Concept of mathematical modelling and development of a model and use of graphical solution in solving LPP.
	CO2	Solving the problems using Simplex and primal dual method.
	CO3	Determining minimum transportation costs and use of assignment models in business and industry.
	CO4	Solving queuing problems in single-channel and multiple-channel situations
	CO5	Inventory management and management decision making and Project management and simulation techniques
	CO6	Use of different simulation techniques like Monte Carlo and Understanding different application of probability distributions and markovprocess in different situations

MATHI

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

RT42122 PROJECT

CO1	The student will be able to demonstrate a sound technical knowledge of their selected project topic
CO2	The student will be able to undertake problem identification, formulation and, solution.
CO3	The student will be able to design engineering solutions to complex problems utilizing a systematic approach
CO4	The student will be able to conduct an engineering project.
CO5	The student will be able to communicate with engineers and the community at large in written and oral forms.
CO6	The student will be able to demonstrate the knowledge, skills and attitudes of a professional engineer

	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	2
C03			2	2							2		2	2
C04			2	2							2		2	2
C05									2	2	2		2	2
C06										2	2		2	2