Government College of Engineering, Salem - 11
Department of Computer Science and Engineering
COs - POs and PSO Mapping
Course Articulation Matrix – 22 Regulation

Semester - I															
22EN101 - Communicative English															
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Comprehend the main ideas, key details and inferred meanings of technical texts	-	-	-	1	-	-	-	-	1	3	-	1	-	-	1
2 Use language effectively at technical and professional contexts	-	-	-	1	-	-	-	-	1	3	-	2	-	-	2
3 Apply the academic and functional writing skills in formal and informal communicative contexts	-	-	-	2	-	-	-	-	1	3	-	1	-	-	1
4 Interpret pictorial representation of statistical data and charts	-	-	-	3	-	-	-	-	1	3	-	1	-	-	1
Average	-	-	-	1.8	-	-	-	-	1	3	-	1.3	-	-	1.3

Semester - I															
22MA101 – Matrices, Calculus and Ordinary Differential Equation															
		Program Outcomes											Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Learn the fundamental knowledge of Matrix theory.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
2	Use both the limit definition and rules of differentiation to differentiable functions.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
3	Apply differentiation to solve maxima and minima problems.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
4	Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to a change of order and change of variables.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
5	Apply various techniques in solving differential equations.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
Average		3	2	-	2	-	-	-	-	-	-	-	-	2	-	-

Semester - I															
22PH101 - Engineering Physics															
	Program Outcomes												Program Specific Outcomes		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Understand the principle to produce ultrasonic waves and acoustics of buildings.	3	2	1	1	1	1	-	-	-	-	-	2	2	1	-
2 Understand the principle and applications of laser & optical fiber.	2	3	1	1	2	1	-	-	-	-	-	2	1	1	-
3 Analyze various modes involved in heat transmission.	3	2	1	1	-	-	-	-	-	-	-	1	2	-	-
4 Gain knowledge in the basic concept of quantum physics.	3	2	1	1	2	-	1	-	-	-	-	1	1	-	-
5 Recognize Crystal structure, crystal defects and crystal growth techniques.	2	2	1	1	2	-	-	-	-	-	-	1	-	1	1
Average	2.6	2.2	1	1	1.7	1	1	-	-	-	-	1.4	1.5	1	1

Semester - I															
22CY101 - Engineering Chemistry															
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Recall the basic principles of spectroscopy and their applications	3	3	-	3	-	-	-	-	-	-	-	-	3	1	1
2	Paraphrase the different methods for water analysis & purification and Nanomaterial & its applications	3	2	-	1	-	2	-	-	-	-	-	-	3	1	1
3	Apply the various adsorption techniques and basic knowledge of Phase equilibria	3	1	-	1	-	-	-	-	-	-	-	-	2	1	1
4	Integrate the principles of electrochemistry, electrochemical cells, corrosion, and its control	2	1	-	1	-	2	-	-	-	-	-	-	2	3	3
5	Assess the basis of polymer preparations & applications and enhancement of the quantity & quality of fuels.	3	2	-	3	-	2	-	-	-	-	-	-	1	1	1
Average		2.8	1.8	-	1.8	-	1.2	-	-	-	-	-	-	2.2	1.4	1.4

	Semester - I														
	22CS101 – Problem Solving and C Programming														
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Explain the concepts of C programming and roles of system software in programming	2	1	3	-	-	-	-	-	-	-	-	-	-	3	1
2	Use general problem-solving techniques to develop solutions to problems	2	1	3	-	2	-	-	-	-	-	-	-	-	3	2
3	Apply the concepts of C programming to develop solutions by writing C programs	2	1	3	-	2	-	-	-	-	-	-	-	-	3	3
	Average	2	1	3	-	2	-	-	-	-	-	-	-	-	3	2

Semester - I															
22CS102 – Computer Practice and C Programming Laboratory															
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Demonstrate the usage of features supported by word processing applications.	-	-	-	-	-	-	-	-	-	-	-	3	-	-	1
2 Demonstrate the usage of features supported by spread sheet applications.	2	3	-	-	-	-	-	-	-	-	-	-	-	-	1
3 Apply general programming techniques to develop digital solutions to problems	2	3	3	-	-	-	-	-	-	-	-	-	-	3	2
4 Implement solutions developed with general programming techniques in C programming language.	1	1	1	-	-	-	-	-	-	-	-	-	-	3	3
Average	1.6	2.3	2	-	-	-	-	-	-	-	-	3	-	3	1.7

Semester - I															
22ME102 – Workshop Manufacturing Practices															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Familiarize the working of various equipment and safety measures.	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
2	Prepare fitting of metal and wooden pieces using simple fitting and carpentry tools manually.	-	3	-	2	1	-	-	-	-	-	-	-	-	-	2
3	Fabrication of components using welding, lathe and drilling machine.	-	3	-	2	1	-	-	-	-	-	-	-	-	-	2
4	Make the model using sheet metal works.	-	3	-	2	1	-	-	-	-	-	-	-	-	-	2
Average		-	3	-	2	1	3	-	-	-	-	-	-	-	-	2

Semester - II															
22MA202 – Linear Algebra And Linear Programming Problem															
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Use the concepts of vector space and subspaces.	3	2	1	1	-	-	-	-	-	-	-	-	2	-	-
2	Apply the concept of linear transformations in diagonalizability.	3	2	1	1	-	-	-	-	-	-	-	-	2	-	-
3	Illustrate the concept of inner product spaces in orthogonalization	3	2	1	1	-	-	-	-	-	-	-	-	2	-	-
4	Solve LPP by using Graphical and Simplex methods.	3	2	1	2	-	-	-	-	-	-	-	-	2	-	-
5	Obtain the solution of Transportation and Assignment models.	3	2	1	2	-	-	-	-	-	-	-	-	2	-	-
Average		3	2	1	1.4	-	-	-	-	-	-	-	-	2	-	-

Semester - II															
22HS201 – Universal Human Values															
		Program Outcomes											**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Become more aware of themselves, and their surroundings (family, society, nature) and become more responsible in life	-	-	1	-	-	1	-	2	-	1	-	3	2	-	1
2	Handle problems with sustainable solutions, while keeping human relationships and human nature in mind	-	-	1	-	-	3	-	1	-	1	-	3	1	-	1
3	Become sensitive to their commitment towards what they have understood (human values, human relationship and human society)	-	-	1	-	-	2	-	1	-	1	-	3	1	-	2
4	Apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.	-	-	2	-	-	1	-	1	-	1	-	3	1	-	1
Average		-	-	1.3	-	-	1.8	-	1.3	-	1	-	3	1.3	-	1.3

Semester - II															
22CS201 – Digital Principles and System Design															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Apply Boolean laws to derive simplified Boolean function and implement the circuit with logic components.	3	2	-	-	-	-	-	-	-	-	-	-	-	3	1
2	Reproduce the existing design of combinational or sequential circuits of a computing device and scale them in size	3	2	-	-	3	-	-	-	-	-	-	-	-	3	1
3	Analyze and design simple combinational or sequential circuits	3	2	-	-	3	-	-	-	-	-	-	-	-	3	3
Average		3	2	-	-	3	-	-	-	-	-	-	-	-	3	1.7

Semester - II															
22EE101 – Basic Electrical and Electronics Engineering															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Analyze the DC circuits using fundamental laws and theorems.	1	1	-	-	-	-	-	-	-	-	1	1	-	-	-
2	Analyze the single and three phase AC circuits.	1	1	-	-	-	-	-	-	-	-	1	1	-	-	-
3	Recognize the working principle of electrical machines and transformers.	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-
4	Recognize the fundamentals and characteristics of diode, BJT and operational amplifier.	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-
5	Demonstrate the concept of electrical installations.	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-
Average		1	1	-	-	-	-	-	-	-	-	1	1	-	-	-

Semester - II															
22ME101 - Engineering Graphics and Design															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Familiarize with the fundamentals and standards of engineering graphics.	3	1	-	-	-	-	-	-	-	-	-	-	3	1	-
2	Ability to understand the fundamental concepts of projection of points, lines and planes.	3	1	-	-	-	-	-	-	-	-	-	-	3	1	-
3	Project the solids and section of solids.	3	1	-	-	-	-	-	-	-	-	-	-	3	1	-
4	Familiarize and develop the lateral surfaces of solids	3	1	-	-	-	-	-	-	-	-	-	-	3	1	-
5	Visualize and project the orthographic, isometric and perspective sections of simple solids.	3	1	-	-	-	-	-	-	-	-	-	-	3	1	-
Average		3	1	-	-	-	-	-	-	-	-	-	-	3	1	-

Semester - II															
22EN102 - Professional Skills Laboratory															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	To read passages fluently with good pronunciation	-	-	-	1	-	-	-	-	2	3	-	1	-	-	1
2	To develop an expressive style of reading	-	-	-	1	-	-	-	-	2	3	-	1	-	-	1
3	To make effective oral presentations in technical and general contexts	-	-	-	2	-	-	-	-	2	3	-	1	-	-	1
4	To excel at professional oral communication	-	-	-	2	-	-	-	-	2	3	-	1	-	-	3
Average		-	-	-	1.5	-	-	-	-	2	3	-	1	-	-	1.5

Semester - II															
22PH103 - Physics Laboratory															
	Program Outcomes												Program Specific Outcomes		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Handle different measuring instruments and to measure different parameters.	3	2	-	3	3	-	-	-	3	1	-	2	1	1	1
2 Calculate the important parameters and to arrive at the final result based on the experimental measurements.	3	2	-	2	1	-	-	-	2	-	-	1	1	1	1
Average	3	2	-	2.5	2	-	-	-	2.5	1	-	1.5	1	1	1

Semester - II															
22CY102 - Chemistry Laboratory															
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	To summarize the applicability of the practical skill gained in various fields.	1	1	-	3	-	-	-	-	-	-	-	-	2	-	-
2	To calculate the composition of brass quantitatively and the molecular weight of polymers.	1	2	-	3	-	-	-	-	-	-	-	-	2	-	-
3	To understand the principle and applications of conductometric and pH titrations, spectrometer, and potentiometric titrations.	2	2	-	3	-	-	-	-	-	-	-	-	2	-	-
Average		1.3	1.7	-	3	-	-	-	-	-	-	-	-	2	-	-

Semester - II															
22EE102 - Basic Electrical and Electronics Engineering Laboratory															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Analyse DC and AC circuits.	1	1	-	-	-	-	-	-	-	-	1	1	-	-	-
2	Calculate various losses in transformer.	1	1	-	-	-	-	-	-	-	-	1	1	-	-	-
3	Recognise the parts of single-phase and three phase induction motors.	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-
4	Demonstrate the characteristics of electron devices.	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-
5	Practice electrical connections by wires of appropriate ratings.	1	-	-	-	-	-	-	-	-	-	1	1	-	-	-
Average		1	1	-	-	-	-	-	-	-	-	1	1	-	-	-

Semester - III															
22MA303 - Probability and Numerical Methods															
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Apply the knowledge of standard distribution.	3	2	-	2	-	-	-	-	-	-	-	-	-	2	-
2	Learn about statistical averages and fitting the curves by Least Square Method.	3	2	-	2	-	-	-	-	-	-	-	-	-	2	-
3	Use the Large and small sample tests.	3	2	-	2	-	-	-	-	-	-	-	-	-	2	-
4	Solve equations by using numerical techniques.	3	2	-	2	-	-	-	-	-	-	-	-	-	2	-
5	Acquire the techniques of interpolation, Numerical differentiation and integration.	3	2	-	2	-	-	-	-	-	-	-	-	-	2	-
Average	**3**	**2**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**

Semester - III															
22CS301 - Computer Organization and　　Architecture															
Course Outcomes		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Explain the working principle and operation of computer hardware components and its various functional units and Apply the operations of arithmetic unit to perform specific task	3	3	-	-	-	-	-	-	-	-	-	3	3	2	-
2	Analyze the different types of control and compare them, Illustrate concept of pipelining and organize the various memory components including Cache memory and Virtual memory	2	2	-	-	-	-	-	-	-	-	-	1	3	-	2
3	Explain the different ways of communication with I/O devices and standard I/O interfaces	2	2	-	-	-	-	-	-	-	-	-	3	3	-	2
Average		2.3	2.3	-	-	-	-	-	-	-	-	-	2.3	3	2	2

Semester - III															
22CS302 - Software Engineering															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Identify and Describe the different life cycle models and requirement collection process.	3	3	3	-	2	-	-	-	-	-	-	2	3	-	2
2	Design and develop software systems	3	3	3	-	2	-	-	-	-	-	-	2	3	3	-
3	Differentiate and Apply the various testing techniques for project management	3	3	3	-	2	-	-	-	-	-	-	2	3	3	-
Average		3	3	3	-	2	-	-	-	-	-	-	2	3	3	2

Semester - III															
22CS303 - Data Structures and Algorithms															
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Implement various abstract data types for linear data structures.	3	3	3	2	2	1	1	-	-	-	2	3	3	2	-
2	Apply the different linear and non-linear data structures to solve real world problems.	3	3	3	2	2	1	1	-	-	-	2	3	3	2	-
3	Critically analyze the various sorting, searching and hashing techniques.	3	3	3	2	2	1	1	-	-	-	2	3	3	2	-
Average	3	3	3	2	2	1	1	-	-	-	2	3	3	2	-

Semester - III															
22CS304 - Operating Systems															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Implement various abstract data types for linear data structures.	3	3	2	1	2	-	1	-	-	-	1	3	2	1	-
2	Apply the different linear and non-linear data structures to solve real world problems.	3	3	2	1	2	-	1	-	-	-	1	3	2	1	-
3	Critically analyze the various sorting, searching and hashing techniques.	3	3	2	1	2	-	1	-	-	-	1	3	2	1	-
Average		3	3	2	1	2	-	1	-	-	-	1	3	2	1	-

Semester - III															
22MCIN02 - Innovation Sprints															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Identify real-world problems	-	3	-	-	-	2	1	-	2	-	-	-	-	-	2
2	Apply the challenge curation techniques to real-world problems.	-	3	-	2	-	-	-	-	2	-	-	-	-	-	2
3	Analyze the problems and generate solutions to address the challenges	-	-	3	2	-	-	-	-	2	-	-	-	-	-	2
4	Build solutions using pertotyping tools & techniques	2	-	3	-	-	-	-	1	2	-	-	-	-	-	2
5	Develop an innovation pitch to effectively communicate the idea to solve the identified problem	-	-	-	-	-	-	-	-	2	3	-	-	-	-	2
Average		2	3	3	2	-	2	1	1	2	3	-	-	-	-	2

Semester - III															
22NC301 - NCC Course-II (Only for NCC Students)															
	Program Outcomes												Program Specific Outcomes		
Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Acquired knowledge about social and legal responsibilities.	3	1	-	-	-	-	-	-	-	-	-	-	3	1	1
2	Understand the adventure activities and verbal training on defence examinations.	3	3	2	3	-	-	-	-	-	-	-	-	3	2	1
3	Understand the technical knowledge on aero engines and map reading.	3	2	3	1	-	2	-	-	-	-	-	-	3	2	1
4	Understand the structure and control of an aircraft.	3	2	2	2	-	-	-	-	-	-	-	-	3	2	1
5	Understand and learn the importance of avionic instruments on aircraft control.	3	-	-	-	-	1	-	-	-	-	-	-	3	3	1
Average		3	2	2.3	2	-	1.5	-	-	-	-	-	-	3	2	1

Note: The table header has two sets of columns. The "Course Outcomes" section contains the outcome number and description. The "Program Outcomes" columns are numbered 1–12, and the "Program Specific Outcomes" columns are numbered 1–3.

Semester - III															
22CS305 - Operating Systems Laboratory															
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Demonstrate the fundamental UNIX commands	2	2	2	1	2	-	1	-	-	-	-	1	2	1	1
2	Implement various commands using Shell Programming	2	2	2	1	2	-	1	-	-	-	-	1	2	1	1
3	Apply various functionalities of operating system to solve problems.	3	3	2	1	2	-	1	-	-	-	-	1	3	2	1
Average	2.3	2.3	2	1	2	-	1	-	-	-	-	1	2.3	1.3	1

		Semester - III													
		22CS306 - Data Structures and Algorithms Laboratory													
			Program Outcomes											Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Decide a suitable data structure and algorithm to solve a real world problem.	3	3	3	2	2	1	1	-	-	-	2	3	3	2	-
2	Understand various linear and non-linear data structures such as stacks, queues, trees, graphs, etc. to solve various computing problems.	3	3	3	2	2	1	1	-	-	-	2	3	3	2	-
3	Demonstrate understanding of various sorting techniques and searching techniques	3	3	3	2	2	1	1	-	-	-	2	3	3	2	-
	Average	3	3	3	2	2	1	1	-	-	-	2	3	3	2	-

Semester- IV															
22MA401 - Discrete Mathematics															
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Acquired knowledge of the concepts needed to test the logic of a program.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
2	Have an understanding in identifying structures on many levels.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
3	Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science and the counting principles.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
4	Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
5	Familiar with Lattices and Boolean algebra.	3	2	-	2	-	-	-	-	-	-	-	-	2	-	-
Average		3	2	-	2	-	-	-	-	-	-	-	-	2	-	-

Semester- IV															
22CS401 - Design and Analysis of Algorithms															
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Analyse the time and space complexity of different algorithms.	3	3	3	1	2	-	1	-	-	1	1	3	3	2	-
2	Apply appropriate design technique for a problem.	3	3	3	1	2	-	1	-	-	1	1	3	3	2	-
3	Modify existing algorithms to improve efficiency.	3	3	3	1	2	-	1	-	-	1	1	3	3	2	-
Average		3	3	3	1	2	-	1	-	-	1	1	3	3	2	-

Semester- IV															
22CS402 - Theory of Computation															
	Program Outcomes												Program Specific Outcomes		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Develop a computational model to recognize regular language or context free language	3	3	2	-	2	1	1	-	-	-	-	3	2	2	-
2 Establish equivalence among computational models of equivalent capacities.	3	3	2	-	2	1	1	-	-	-	-	3	2	2	-
3 Recall the procedures involved in the construction of computational models.	3	3	2	-	2	1	1	-	-	-	-	3	2	2	-
Average	3	3	2	-	2	1	1	-	-	-	-	3	2	2	-

Semester- IV															
22CS403 - Object Oriented Programming Using C++															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Familiarize the object oriented programming concepts, Generic Programming and handling exceptions.	3	3	3	2	1	-	1	-	-	-	2	2	3	2	-
2	Apply Object Oriented Programming concepts for problem solving.	3	3	3	2	1	-	1	-	-	-	2	2	3	2	-
3	Design solutions to real world problems using Object Oriented Concepts.	3	3	3	2	1	-	1	-	-	-	2	2	3	2	-
Average		3	3	3	2	1	-	1	-	-	-	2	2	3	2	-

Semester- IV															
22CS404 - Microprocessors and Microcontrollers															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand and execute programs based on 8-86 microprocessor.	2	2	-	-	-	-	-	-	-	-	2	-	2	-	-
2	Design Memory Interfacing circuits.	2	2	2	2	-	-	-	-	-	-	-	-	2	-	-
3	Design and interface I/O circuits.	2	2	2	2	-	-	-	-	-	-	-	-	2	-	-
4	Design and implement 8-51 microcontroller based systems.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average		2	2	2	2	-	-	-	-	-	-	2	-	2	-	-

Semester- IV															
22MCIN03 - Design Sprints															
	Program Outcomes												Program Specific Outcomes		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Understand the elements and principles of product and service design	3	-	1	-	-	-	-	-	2	-	-	-	-	-	2
2 Apply system thinking concepts in reverse engineering	2	3	-	-	-	-	-	-	2	-	-	-	-	-	2
3 Apply user research techniques to meet the UX needs of a customer and design a visual prototype	3	-	1	-	-	-	-	1	2	-	-	-	-	-	2
4 Develop prototyping models using the tools from mechanical prototyping models	-	-	3	2	3	-	-	-	2	-	-	-	-	-	2
5 Develop prototyping models using the tools from electrical and software prototyping methods	2	-	2	-	1	-	-	-	2	-	-	-	-	-	2
Average	1.6	3	1.7	2	2	-	-	1	2	-	-	-	-	-	2

Semester- IV															
2CYMC01 - Environmental Science															
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	To identify about the major renewable energy systems and will investigate the environmental impact of various energy sources as well as the consequences of various pollutants.	-	1	3	-	-	3	1	1	-	-	-	1	2	-	1
2	Predict the methods to conserve energy and ways to make optimal use of the energy for the future.	-	1	3	-	-	3	1	1	-	-	-	1	2	-	1
Average		-	1	3	-	-	3	1	1	-	-	-	1	2	-	1

Semester- IV																
22CS405 - Object Oriented Programming Using C++ Laboratory																
		Program Outcomes													**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Construct programs using Object Oriented Programming concepts	3	3	3	2	1	-	1	-	-	-	2	2	3	2	-
2	Build Generic Programming	3	3	3	2	1	-	1	-	-	-	2	2	3	2	-
3	Develop program for handling exceptions	3	3	3	2	1	-	1	-	-	-	2	2	3	2	-
Average		3	3	3	2	1	-	1	-	-	-	2	2	3	2	-

Semester- IV															
22CS406 - Microprocessor and Microcontroller Laboratory															
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Write ALP Programmes for fixed and Floating Point and Arithmetic	1	-	2	-	-	-	-	-	-	-	-	-	2	1	-
2 Interface different I/O switch processor	-	2	2	-	-	-	-	-	-	-	2	-	2	-	-
3 Generate waveforms using Microprocessors	1	2	2	-	-	-	-	-	-	-	2	-	-	-	-
4 Execute Programs in 8-51	2	2	2	-	-	-	-	-	-	-	-	-	2	2	-
5 Explain the difference between simulator and Emulator	-	2	-	2	-	-	-	-	-	-	2	-	-	1	-
Average	1.3	2	2	2	-	-	-	-	-	-	2	-	2	1.3	-

Semester- V															
22CS501 - Database Management Systems															
	Program Outcomes													**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Comprehend the basic concepts of the database and relational data models and Write SQL queries	3	-	-	-	-	3	-	-	-	-	-	3	3	3	-
2	Design a database using ER diagrams and map ER into Relations and normalize the relations and Summarize the transaction management and recovery management techniques adopted in database management system	3	3	3	-	-	3	-	-	-	-	-	3	3	3	-
3	Describe and analyze the general idea of data storage, indexing techniques and query processing and Develop a simple database for applications	3	-	-	-	3	3	-	-	-	3	3	3	3	3	-
Average		3	3	3	-	3	3	-	-	-	3	3	3	3	3	-

Semester- V															
22CS502 - Java Programming															
	Program Outcomes												Program Specific Outcomes		
Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Familiarize and apply the Object Oriented concepts and Java features	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Build the standalone applications and applet applications	3	3	3	-	3	-	-	-	3	-	3	3	3	2	-
3	Develop simple chart application and Database Connectivity	3	3	3	3	3	-	-	-	3	-	3	3	3	2	-
Average	3	3	3	3	3	-	-	-	3	-	3	3	3	2	-

		Semester- V															
		22CS503 - Computer Networks															
			Program Outcomes												Program Specific Outcomes		
	Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the fundamental concepts of networking and working principles of various communication protocols.		3	3	1	2	2	-	-	-	-	-	1	3	2	1	-
2	Apply the various functionalities of OSI layers in real time applications		3	3	1	2	2	-	-	-	-	-	1	3	2	1	-
3	Analyze the various network issues in different layers and provide suitable solutions.		3	3	1	2	2	-	-	-	-	-	1	3	2	1	-
	Average		3	3	1	2	2	-	-	-	-	-	1	3	2	1	-

Semester- V															
22CS504 - Principles Of Compiler Design															
Course Outcomes		Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Illustrate the operation of a compiler phases.	3	3	2	-	2	1	1	-	-	-	-	3	2	2	-
2	Compute the information to perform the task of a compiler phase.	3	3	2	-	2	1	1	-	-	-	-	3	2	2	-
3	Recall the principles and algorithms involved in compiler construction.	3	3	2	-	2	1	1	-	-	-	-	3	2	2	-
Average		3	3	2	-	2	1	1	-	-	-	-	3	2	2	-

Semester- V

22CS505 - Database Management Systems Laboratory

	Course Outcomes	Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Build tables, construct relationships among them and retrieve data with simple and complex queries.	-	-	3	-	-	-	3	-	-	-	3	-	3	3	-
2	Build various constraints, triggers and indexes on the tables.	-	-	3	-	-	-	3	-	-	-	3	-	3	3	-
3	Design and implement a database and to integrate into a simple application.	-	-	3	-	-	-	3	-	-	-	3	-	3	3	-
	Average	-	-	3	-	-	-	3	-	-	-	3	-	3	3	-

Semester- V															
22CS506 - Java Programming Laboratory															
		Program Outcomes												**Program Specific Outcomes**		
Course Outcomes		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Implement object oriented programming concepts and java features	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Develop Java standalone applications and applet applications	3	3	3	-	3	-	-	-	3	-	3	3	3	2	-
3	Build simple chat applications and database connectivity applications	3	3	3	3	3	-	-	-	3	-	3	3	3	2	-
Average		3	3	3	3	3	-	-	-	3	-	3	3	3	2	-

Semester- V															
22EN401 - Placement And Soft Skills Laboratory															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Participate in group discussion and interview confidently	-	-	-	1	-	-	-	-	2	3	-	1	-	-	1
2	Develop adequate soft skills and career skills required for the workplace	-	-	-	2	-	-	-	-	2	3	-	1	-	-	2
3	Make effective presentations on given topics	-	-	-	2	-	-	-	-	1	3	-	1	-	-	1
4	Apply their verbal ability and reasoning ability in campus interviews	-	-	-	1	-	-	-	-	2	3	-	1	-	-	2
Average		-	-	-	1.5	-	-	-	-	1.8	3	-	1	-	-	1.5

Semester- VII			

22CS701 - Cryptography And Network Security

	Course Outcomes	Program Outcomes												Program Specific Outcomes		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the fundamentals of Network Security, Security Architecture and Various Encryption Techniques	3	2	3	-	3	3	-	-	-	-	2	2	3	3	-
2	Apply various cryptographic operations of Symmetric key and Asymmetric key Cryptography Algorithms	3	3	3	-	3	3	-	-	-	-	2	2	3	2	-
3	Apply various Authentication schemes to simulate different applications.	3	3	3	-	3	3	-	-	-	-	2	2	3	3	-
4	Understand the concept of Network security applications and System security standards.	3	3	3	-	3	3	-	-	-	-	2	2	3	3	-
	Average	3	2.8	3	-	3	3	-	-	-	-	2	2	3	2.8	-

Semester- VII															
22CS702 - Python Programming															
		Program Outcomes												Program Specific Outcomes		
	Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	To understand the basic concepts of python programming.	3	3	3	2	1	-	1	-	-	-	2	2	3	2	-
2	To design simple programs using python programming concepts.	3	3	3	2	1	-	1	-	-	-	2	2	3	2	-
3	To apply python programming concepts in the real world application.	3	3	3	2	1	-	1	-	-	-	2	2	3	2	-
Average		3	3	3	2	1	-	1	-	-	-	2	2	3	2	-

Semester- VII															
22CS703 - Machine Learning															
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1 Recall or apply the machine learning fundamentals	1	-	-	-	-	-	-	-	-	-	-	-	1	2	-
2 Reproduce or apply the learning techniques	-	3	3	2	2	-	-	-	-	-	-	1	3	3	-
Average	1	3	3	2	2	-	-	-	-	-	-	1	2	2.5	-

Semester - VII															
22CS704 - Mobile Computing															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Explain the basics of mobile telecommunication system	2	2	3	2	2	1	-	-	-	-	2	2	1	2	-
2	Identify solution for each functionality at each layer	2	2	3	2	2	1	-	-	-	-	2	2	1	2	-
3	Develop a mobile application.	2	2	3	2	2	1	-	-	-	-	2	2	1	2	-
Average		2	2	3	2	2	1	-	-	-	-	2	2	1	2	-

Semester- VII															
22MG7-1 - Principles of Management															
		Program Outcomes												Program Specific Outcomes		
Course Outcomes		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Understand the basic management functions and planning techniques; also have same basic knowledge on international aspect of management.	-	-	-	-	1	-	-	2	1	1	2	-	-	2	-
2	Interpret the managerial functions like organizing, staffing and directing with motivational theories.	-	-	-	-	1	-	-	2	1	1	2	-	-	2	-
3	Understand analytical, developmental, technical skills, communication and controlling techniques to managing organizations.	-	-	-	-	1	-	-	2	1	1	2	-	-	2	-
Average		-	-	-	-	1	-	-	2	1	1	2	-	-	2	-

Semester- VII														
22CS705 - Machine Learning Laboratory														
	Program Outcomes												**Program Specific Outcomes**		
Course Outcomes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
1	Use or build machine learning models	-	3	3	2	2	-	-	-	-	-	-	1	3	3	-
2	Choose appropriate criteria to report machine learning model performance	1	-	-	-	-	-	-	-	-	-	-	-	1	2	-
Average	1	3	2	2	2	-	-	-	-	-	-	1	2	2.5	-