

Program Outcomes (POs)
Program Specific Outcomes (PSO)
Course Outcomes (COs)
&
CO PO-PSO Articulation Matrices
(2019-20) Onwards



Department of Computer Science & Engineering
BRCM
College of Engineering & Technology

Program Outcomes (PO) as defined by NBA

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSO)

At the end of the program, the student

PSO1: Should be able to apply the Concepts of Mathematics, Algorithms, Data Structures, Programming Languages, Databases, Multimedia, Operating Systems, Computer Networks, Computer Architecture, Big Data Analysis, Artificial Intelligence and Machine Learning to solve computation tasks and develop applications of varying complexity.

PSO2: Should be able to understand and make a contribution in the areas of Computer Science & Engineering through the design & planning of Software based real-world applications and also demonstrate professional ethics & concern for social well-being.

B.Tech. CSE 3rd Semester

Course: Database Management Systems

Course Code: PCC-CSE-201G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the concepts of DBMS Architecture and database objects and their Applications.	L2 (Understand)
CO2	To Summarize transaction processing, concurrency control and database recovery protocols in databases.	L2 (Understand)
CO3	To Apply Relational algebra operation & Structured Query Language (SQL) for database manipulation.	L3 (Apply)
CO4	To Apply normalization algorithms using database design theory for different applications.	L3 (Apply)
CO5	To Design Relational database systems for different applications to interact with databases.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	2	1
CO2	2	3	2									1	3	2
CO3	2	2	3	2								1	2	1
CO4	2	2		2								1	2	2
CO5	1	2	3	2								1	1	1

Course: Data Structures & Algorithms

Course Code: PCC-CSE-203G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Explain the basic concepts such as Abstract Data Types, Linear and Non-Linear Data structures.	L1 (Remember)
CO2	To Describe insertion, deletion and traversing operations on Data Structures.	L2 (Understand)
CO3	To Solve problems using Algorithms such as the sorting, searching and hashing.	L3 (Apply)
CO4	To Solve Problems using Data Structures such as Lists, Graphs, Queues.	L3 (Apply)
CO5	To Design programs using a variety of data structures such as stacks, queues, hash tables, binary trees, search trees, heaps, graphs, and B-trees.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3											1	3	3
CO2	2	3										1	3	2
CO3	2	2	3									1	3	2
CO4	2		3									1	3	2
CO5	2	2	3	1								1	3	2

Course: Digital Electronics
Course Code: ESC-CSE-205G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basics of Digital Electronics	L1 (Remember)
CO2	To Summarize the minimization techniques of Digital Circuits.	L2 (Understand)
CO3	To Apply the working mechanism and design guidelines of different combinational, and sequential circuits.	L3 (Apply)
CO4	To Analyze different types of Digital Electronic circuits using various Matrices and mathematical methods.	L4 (Analyze)
CO5	To Design different types of Digital Circuits.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	2	2
CO2	3	2										1	3	2
CO3	2	2	3									1	2	2
CO4	2	2	3									1	2	2
CO5	2	2	3									1	1	1

Course: Python Programming
Course Code: PCC-CSE-207G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Define the basic concepts of Python programming.	L1 (Remember)
CO2	To Explain the string manipulation and text files of Python programming.	L2 (Understand)
CO3	To Apply various Lists, Dictionaries and Functions used in Python language.	L3 (Apply)
CO4	To Analyze Object-Oriented aspects in Python programming such as inheritance, polymorphism etc.	L3 (Apply)
CO5	To Design and plan software solutions to problems using an object-oriented strategy.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	3	3
CO2	2	3										1	2	2
CO3	2	2	3									1	2	2
CO4	2	2	3	2								1	2	1
CO5	2		3									1	1	1

Course: Math-III (Multivariable Calculus, Differential Equations)
Course Code: BSC-MATH-203G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Recall The mathematical tools needed in evaluating multiple integrals and their usage.	L1 (Remember)
CO2	To Understand the effective mathematical tools for the solutions of differential equations that model physical processes.	L2 (Understand)
CO3	To Apply the tools of differentiation and integration of functions that are used in various techniques dealing engineering problems.	L3 (Apply)
CO4	To Analyze how to deal with functions of several variables that are essential in most branches of engineering.	L4 (Analyze)
CO5	To Evaluate/solve the mathematical problems related to multivariable differentiation and integration.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	3	3
CO2	3	2										1	3	3
CO3	2	3										1	3	3
CO4	2	3										1	2	3
CO5	2	3										1	3	2

Course: Economics for Engineers
Course Code: HSMC-01G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the Basics of Economic Theories terminology, Cost concepts and Pricing Policies Used in Engineering Economics.	L1 (Remember)
CO2	To Summarize the measures of national income, the functions of banks and concepts of globalization.	L2 (Understand)
CO3	To Discuss how supply and demand change when a product's price changes.	L2 (Understand)
CO4	To Use the Concept of Demand to explain the Outcomes of markets for individuals firms and society.	L4 (Analyze)
CO5	To Analyze how a change in price and income affects the behaviour of buyers and sellers.	L4 (Analyze)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1						3					2	1	1	2
CO2						2			3		2	1	1	2
CO3						3					3	1	1	2
CO4						3					2	1	3	2
CO5						3			2		2	1	3	1

Course: Database Management Systems LAB
Course Code: LC-CSE-209G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To List of various of SQL Command	L2 (Understand)
CO2	To Demonstrate SQL queries using SQL operators.	L2 (Understand)
CO3	To Create a database by using data definition, data manipulation and control languages.	L6 (Create)
CO4	To Create a Database application and retrieve the values with the help of queries using SQL.	L6 (Create)
CO5	To Create views, cursor and triggers.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	2	1
CO2	2	3	2		2							1	3	2
CO3	2	2	3	2	2							1	2	1
CO4	2	2		2	2							1	2	2
CO5	2	2	3	2	2							1	1	1

Course: Digital Electronics LAB
Course Code: LC-ESC-211G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge about measuring instrument and kit.	L1 (Remember)
CO2	To Explain the asynchronous, synchronous digital circuit and Flip-Flop conversion. Also basic knowledge about TTL and Flip- Flop Gates.	L2 (Understand)
CO3	To Analyze the function using k-maps and operation of shift register	L4 (Analyze)
CO4	To Verify the operation of Multiplexer, Demultiplexer & counter.	L6 (Create)
CO5	To Design counter and seven segment display unit.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	2	1
CO2	2	3	2		2							1	3	2
CO3	2	2	3	2	2							1	2	1
CO4	2	2		2	2							1	2	2
CO5	2	2	3	2	2							1	1	1

Course: Data Structures & Algorithms LAB Using C
Course Code: LC-CSE-213G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Choose appropriate data structure while designing the applications..	L2 (Understand)
CO2	To Solve the problems of various data structures such as stack, queue and tree.	L2 (Understand)
CO3	To Analyze the complexity of the algorithms.	L4 (Analyze)
CO4	To Implement various searching and sorting techniques.	L6 (Create)
CO5	To Implement linear and non-linear data structures using linked list	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3											1	2	3
CO2	2	3			2							1	2	2
CO3	2	2	3		2							1	2	2
CO4	2		3		2							1	3	2
CO5	2	2	3	1	2							1	3	2

Course: Python Programming LAB
Course Code: LC-CSE-215G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic concepts of Python Programming.	L1 (Remember)
CO2	To Describe the core data structures like lists, dictionaries, tuples and sets in Python to store, process and sort the data.	L2 (Understand)
CO3	To Apply the external modules and import specific methods from the package	L3 (Apply)
CO4	To Demonstrate proficiency in handling Strings and File Systems	L3 (Apply)
CO5	To Design a dynamic application through Python Programming.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	2	3
CO2	2	3			2							1	2	2
CO3	2	2	3		2							1	2	2
CO4	2	2	3	2	2							1	2	1
CO5	2		3		2							1	1	1

B.Tech. CSE 4th Semester

Course: Discrete Mathematics
Course Code: PCC-CSE-202G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Recall the Concepts, design and implementation of Discrete mathematics	L1 (Remember)
CO2	To Perform the operations associated with sets, relations, functions and discrete structures.	L2 (Understand)
CO3	To Apply mathematical logic to solve problems.	L3 (Apply)
CO4	To Apply the properties of Boolean algebra to simplify or convert a Boolean expression	L3 (Apply)
CO5	To Solve real world problems using graphs and trees.	L4 (Analyze)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2									1	2	2
CO2	2	3	2									1	1	1
CO3	3	2										1	2	1
CO4	3	2										1	2	2
CO5	2	2	3									1	2	2

Course: Computer Organization & Architecture
Course Code: PCC-CSE-204G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the basics of Computer Organization and Architecture and functionality of central processing unit.	L1 (Remember)
CO2	To Explain the basics of Data representation, components, and fixed point representation.	L2 (Understand)
CO3	To Analyze different modes of data transfer, classify interconnection structures and distinguish CPU vs. ALU architectures & computations.	L4 (Analyze)
CO4	To Classify cache memory Matrices techniques and examine register transfer between processor, memory & I/O.	L4 (Analyze)
CO5	To Compare Hardwired & CISC style processors of parallel processing, pipelining and inter-processor communication.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2									1	2	2
CO2	2	3	2									1	3	2
CO3	2	2	3									1	2	2
CO4	2	2	3									1	2	1
CO5	1	2	3	1								1	1	1

Course: Operating System
Course Code: PCC-CSE-206G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic knowledge about the Operating System and Process.	L1 (Remember)
CO2	To Describe the concepts of memory management including virtual memory.	L2 (Understand)
CO3	To Apply the concept of the different scheduling algorithms used for process management in operating system.	L3 (Apply)
CO4	To Analyze the issues related to file system interface and implementation, disk management.	L4 (Analyze)
CO5	To Compare various types of operating systems including Unix.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	1	1
CO2	2	3										1	1	2
CO3	2	3										1	1	2
CO4	2	3										1	2	2
CO5	1	3										1	1	1

Course: Object Oriented Programming
Course Code: PCC-CSE-208G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic concept of OOPs and C++ language features.	L1 (Remember)
CO2	To Demonstrate the use of constructors, destructors and also the behaviour of inheritance and its implementation.	L2 (Understand)
CO3	To Apply the concept of Function overloading, operator overloading, Inheritance, virtual functions and polymorphism.	L3 (Apply)
CO4	To Analyze runtime Polymorphism and Generic Programming	L4 (Analyze)
CO5	To Evaluate Exception handling.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2									1	3	3
CO2	2	3	2									1	2	2
CO3	3	2	2									1	2	2
CO4	3	2	2									1	1	2
CO5	2	3	2									1	1	1

Course: Organizational Behaviour
Course Code: HSMC-02G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To be Able to resolve the conflicts within an organization.	L1 (Remember)
CO2	To Learn how effectively and efficiently a manager manages their employees.	L2 (Understand)
CO3	To Understand students their own behaviour, attitudes and ethical views.	L2 (Understand)
CO4	To Analyze how to improve the functional behaviour within an organization.	L4 (Analyze)
CO5	To Develop the communication and administrative skills.	L4 (Analyze)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1								2	3	1		2	1	2
CO2								2	3	1		2	1	2
CO3								3	2	1		2	1	2
CO4								2	3	1		2	2	2
CO5								2	3	3		2	3	3

Course: Environmental Sciences
Course Code: MC-106G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Understand the core concepts and methods from ecological and physical sciences and their application in environmental problem-solving.	L2 (Understand)
CO2	To Discuss Living Organisms, and various issues related to Environment.	L2 (Understand)
CO3	To Apply the environment friendly techniques for healthy environment.	L3 (Apply)
CO4	To Analyze problems associated with environmental degradation including pollution related issues.	L4 (Analyze)
CO5	To Assess the contribution of human behaviour in environmental degradation.	L4 (Analyze)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3					2	2	2				2	1	1
CO2						3	2	2				2	1	2
CO3						3	2	2				2	1	2
CO4						3	2	2				2	1	2
CO5						3	2	2				2	1	1

Course: Web Technologies
Course Code: PCC-CSE-210G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic concept of internet & protocols of internet.	L1 (Remember)
CO2	To Understand HTML,CSS,XML & PHP for website preparation.	L2 (Understand)
CO3	To Implement AJAX with PHP for database connectivity.	L3 (Apply)
CO4	To Analyze different tools & Web development languages for Attractive Website.	L4 (Analyze)
CO5	To Design web pages using HTML, XML and DHTML.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	2	2
CO2	2	3										1	3	2
CO3	2	3	2									1	2	2
CO4	2	3	2									1	3	2
CO5	2	2	3									1	3	3

Course: Operating System LAB
Course Code: LC-CSE-212G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Discuss UNIX File System & Commands for working in UNIX environment.	L2 (Understand)
CO2	To Apply the basic concepts of Shell Programming and control structures	L3 (Apply)
CO3	To Analyze LINUX kernel, shell, basic commands, pipe and filter commands.	L4 (Analyze)
CO4	To Analyze CPU Scheduling Algorithms. (FCFS, RR, SJF, Priority, Multilevel Queuing)	L4 (Analyze)
CO5	To Evaluate simulating FIFO, LRU, and OPTIMAL page replacement algorithm.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	1	1
CO2	2	3			2							1	1	2
CO3	2	3		2	2							1	1	2
CO4	2	3		2	2							1	2	2
CO5	1	3			2							1	1	1

Course: Object Oriented Programming Using C++ LAB
Course Code: LC-CSE-214G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Explain C++ compiler and translate basic C programs into C++ programs.	L2 (Understand)
CO2	To Apply inheritance and polymorphism features to implement code reusability.	L3 (Apply)
CO3	To Analyze Exception handling concepts to handle runtime errors.	L4 (Analyze)
CO4	To Create programs on classes, objects, constructors and make use of access specified in classes.	L6 (Create)
CO5	To Create programs using different operators, function overloading and operator overloading.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2									1	3	1
CO2	2	3	2		2							1	1	1
CO3	3	2	2		2							1	2	2
CO4	3	2	2		2							1	3	3
CO5	2	3	2		2							1	3	3

Course: Web Technologies LAB
Course Code: LC-CSE-216G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe different commands of HTML,CSS,XML & PHP for website preparation.	L2 (Understand)
CO2	To Use AJAX with PHP for database connectivity.	L3 (Apply)
CO3	To Analyze a web page and identify its elements and attributes.	L4 (Analyze)
CO4	To Create XML documents and Schemas.	L6 (Create)
CO5	To Design an Application with Back-end use PHP.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	2	3
CO2	2	3			2							1	3	2
CO3	2	3	2		2							1	3	3
CO4	2	3	2		2							1	3	3
CO5	2	2	3		2							1	3	3

B.Tech. CSE 5th Semester

Course: Microprocessor

Course Code: ESC-CSE-301G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy's
CO1	To Recall the basic knowledge of microprocessor and interfacing devices.	L1 (Remember)
CO2	To Understand the construction, principle of operation and pin configuration and architecture of microprocessor (8085,8086 processor) and peripheral devices.	L2 (Understand)
CO3	To Experiment the programming by the understanding of instruction sets of microprocessor.	L3 (Apply)
CO4	To Analyze the interfacing of devices like 8255,8259,8237,8254.	L4 (Analyze)
CO5	To Create the programming of 8085 and 8086 microprocessor and interfacing the devices	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	1	2
CO2	2	3										1	1	2
CO3	2	2	3									1	1	2
CO4	2	2	3									1	1	2
CO5	2	2	3									1	1	1

Course: Computer Networks

Course Code: PCC-CSE-303G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy's
CO1	To Explain Basic Computer Network Terms and Principles.	L1 (Remember)
CO2	To Summarize different protocols used at Application Layer i.e .FTP, DNS, HTTP, DNS, SNMP, SMTP.	L2 (Understand)
CO3	To Examine the functions of different layers in OSI and TCP/IP model.	L4 (Analyze)
CO4	To Analyze the different types of Network Topologies and Protocols.	L4 (Analyze)
CO5	To Compare different Network Layer Protocols and Routing Algorithms.	L4 (Analyze)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3											1	2	3
CO2	2	3	2									1	1	2
CO3	3	2	2									1	2	2
CO4	2	2		3								1	3	3
CO5	2	3	2									1	3	1

Course: Formal Languages & Automata
Course Code: PCC-CSE-305G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy's
CO1	To Understand designing of various kinds of Finite State Machines.	L2 (Understand)
CO2	To Analyze various types of grammars i.e. Context Free Grammars.	L4 (Analyze)
CO3	To Describe the basic concepts of computability using Turing Machines and Undecidability.	L2 (Understand)
CO4	To Examine the Regular Expressions and Properties of Regular languages.	L4 (Analyze)
CO5	To Conceptualize about parsing of grammars, finding out ambiguities and removing ambiguities from grammars.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2									1	1	1
CO2	2	3	2									1	1	2
CO3	2	2	3	2								1	1	1
CO4	2	3										1	2	2
CO5	2	2		2								1	3	2

Course: Design & Analysis of Algorithms
Course Code: PCC-CSE-307G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Recall the concept of algorithm designs a non-linear data structures.	L1 (Remember)
CO2	To Describe NP Hard and NP Complete Problems.	L2 (Understand)
CO3	To Apply Divide and Conquer, Greedy and Dynamic Programming algorithmic methods.	L3 (Apply)
CO4	To Apply efficient algorithms based on Backtracking and Branch & Bound approach in solving real time problems.	L3 (Apply)
CO5	To Analyze the asymptotic performance of algorithms.	L4 (Analyze)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2									1	3	3
CO2	2	3	2	2								1	2	2
CO3	2	2	3	2								1	2	2
CO4	2	2	3	2								1	2	2
CO5	2	2		3								1	3	2

Course: Programming in Java
Course Code: PCC-CSE-309G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the basics of object-oriented programming using JAVA.	L2 (Understand)
CO2	To Apply the concept of classes, Java, JDK Components and develop Simple Java Programs.	L3 (Apply)
CO3	To Analyze Multi-threading Programming and Interfaces.	L4 (Analyze)
CO4	To Develop Simple Java Programs using Inheritance and Exception.	L6 (Create)
CO5	To Develop GUI applications using Applet classes, Swing components and Event handling programs.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	3	3
CO2	2	3	2									1	3	2
CO3	2	2	3									1	3	2
CO4	2	2	3									1	3	2
CO5	2	2	2	3								1	3	2

Course: Software Engineering (Elective-I)
Course Code: PEC-CSE-311G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Understand the Basics Terms of Software Engineering.	L2 (Understand)
CO2	To Discuss Various Software Testing Techniques, Software Quality Assurance activities, ISO standards and Software configuration management.	L2 (Understand)
CO3	To Apply the software engineering lifecycle by demonstrating competence in requirement analysis, planning, analysis, design, construction, testing and deployment.	L3 (Apply)
CO4	To Analyze and lay down software requirements through a productive association with various stakeholders of the software project.	L4 (Analyze)
CO5	To Analyze and plan software solutions to problems using an object-oriented strategy.	L4 (Analyze)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	3	2
CO2	2	3	2									1	2	3
CO3	2	2	3	2								1	3	2
CO4	2	2	3	2								1	2	2
CO5	2	2	2									1	2	3

Course: Microprocessor Lab
Course Code: LC-ESC-321G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Understand and apply the fundamentals of assembly level programming of microprocessors and microcontroller.	L3 (Apply)
CO2	To Solve basic binary math operations using the instructions of microprocessor 8085.	L3 (Apply)
CO3	To Design , code and debugs Assembly Language programs to implement simple programs.	L6 (Create)
CO4	To Apply programming knowledge using the capabilities of the stack, the program counter.	L3 (Apply)
CO5	To Troubleshoot interactions between software and hardware.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	1	2
CO2	2	3			2							1	1	2
CO3	2	2	3		2							1	1	2
CO4	2	2	3		2							1	1	2
CO5	2	2	3		2							1	1	1

Course: Computer Networks Lab
Course Code: LC-CSE-323G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy's
CO1	To Demonstrate the function(s) of each layers of the OSI model and TCP/IP.	L3 (Apply)
CO2	To Describe the different types of network topologies and protocols.	L2 (Understand)
CO3	To Analyze the various routing algorithms.	L4 (Analyze)
CO4	To Construct simple network by using any modern Open Source Network Simulation Tool.	L6 (Create)
CO5	To Design and implement a peer to peer file sharing application utilizing application layer protocols such as HTTP, DNS, and SMTP and transportation layer protocol.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3											1	2	3
CO2	2	3	2		2							1	1	2
CO3	3	2	2		2							1	2	2
CO4	2	2		3	2							1	3	3
CO5	2	3	2		2							1	3	1

Course: Design & Analysis of Algorithms Using C++
Course Code: LC-CSE-325G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Apply the Divide and Conquer method to solve various problems.	L3 (Apply)
CO2	To Apply the Backtracking method to solve problems various problems.	L3 (Apply)
CO3	To Compare different Sorting and Searching algorithms which provide the same solution.	L4 (Analyze)
CO4	To Create the programs to solve problems using algorithm design techniques	L6 (Create)
CO5	To Create programs to solve problems using Greedy and Dynamic programming techniques.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2									1	3	3
CO2	2	3	2	2	2							1	2	2
CO3	2	2	3	2	2							1	2	2
CO4	2	2	3	2	2							1	2	2
CO5	2	2		3	2							1	3	2

Course: Programming in Java Lab
Course Code: LC-CSE-327G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Identify of the structure and model of the Java programming language.	L2 (Understand)
CO2	To Identify classes, objects, members of a class and relationships among them needed for a specific problem.	L2 (Understand)
CO3	To Demonstrate the concepts of polymorphism and inheritance.	L3 (Apply)
CO4	To Design Java programs to implement error handling techniques using exception handling.	L6 (Create)
CO5	To Design Java application programs using OOP principles and proper program structuring.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	2	3
CO2	2	3	2		2							1	2	2
CO3	2	2	3		2							1	3	2
CO4	2	2	3		2							1	3	2
CO5	2	2	2	3	2							1	3	2

B.Tech. CSE 6th Semester

Course: Compiler Design
Course Code: PCC-CSE-302G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Recall the concepts, design and implementation of language processors i.e. compilers.	L1 (Remember)
CO2	To Illustrate the various aspects like grammars, languages and phases of compilers etc.	L2 (Understand)
CO3	To Applying concept of First and follow of non-terminals and the ambiguity of Grammar.	L3 (Apply)
CO4	To Analyze the syntax directed translations with syntax trees.	L4 (Analyze)
CO5	To Evaluate the Code Optimization and Code Generation.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	2	3
CO2	2	3	2									1	2	2
CO3	2	2	3	2								1	1	2
CO4	2	2	3	2								1	2	3
CO5	2	2	2	3								1	3	2

Course: Artificial Intelligence
Course Code: PCC-CSE-304G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the concept of Artificial Intelligence.	L2 (Understand)
CO2	To Solve the basic AI based problem solving, inference perception, knowledge representation and learning.	L3 (Apply)
CO3	To Break down real-world problems as state space problems, optimization problems or constraint satisfaction problems.	L4 (Analyze)
CO4	To Analyze AI techniques to real-world problems to develop intelligent systems.	L4 (Analyze)
CO5	To Design an expert system by using appropriate tools and techniques for implementing the intelligent system.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	3	2
CO2	2	2	3									1	2	2
CO3	2	3	2									1	2	2
CO4	2	2	2	3								1	1	2
CO5	2	2	2	3								1	2	1

Course: Advanced Java
Course Code: PCC-CSE-306G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the role of Servlet & JSP for Web designing.	L2 (Understand)
CO2	To Demonstrate the role of Spring & Struts.	L3 (Apply)
CO3	To Differentiate between Hibernate & Spring.	L4 (Analyze)
CO4	To Analyze Design Pattern of J2EE & Android.	L4 (Analyze)
CO5	To Create Mail API for understanding of mail system.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	3	3
CO2	2	3	2									1	3	2
CO3	2	2	3	2								1	3	2
CO4	2	2	3	2								1	3	2
CO5	2	2	2	2								1	3	2

Course: Mobile and Wireless Communication
Course Code: ESC-CSE-308G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the key concepts of cellular communication and Satellite Systems.	L2 (Understand)
CO2	To Demonstrate the standards like GSM, Bluetooth, 802.11, WAP etc.	L3 (Apply)
CO3	To Differentiate various multiple-access techniques for mobile communications like FDMA, TDMA, and CDMA.	L4 (Analyze)
CO4	To Analyze various routing algorithms and applications of Mobile Ad-Hoc Networks.	L4 (Analyze)
CO5	To Assess Mobile IP Standard with packet delivery concept.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	2	3
CO2	2	3	2									1	1	2
CO3	2	2	3									1	2	2
CO4	2	2	2	2								1	3	3
CO5	3	2	2	3								1	3	1

Course: Advanced Database Management System (Elective-II)
Course Code: PEC-CSE-310G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe Basic Components, Terms, Advantages and Disadvantages of DBMS.	L2 (Understand)
CO2	To Illustrate the Transactions issues and concurrency control.	L2 (Understand)
CO3	To Demonstrate the ER, EER, Network, Hierarchical and Relational data models.	L3 (Apply)
CO4	To Analyze Parallel and Distributed Databases and Query Processing and Optimization.	L4 (Analyze)
CO5	To Compare Object Oriented and Object Relational Databases.	L4 (Analyze)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	3	3
CO2	2	3	2									1	2	2
CO3	2	2	3	2								1	2	2
CO4	2	2	3	2								1	3	2
CO5	2	2	3	2								1	2	2

Course: Distributed System (Elective-III)
Course Code: PCC-CSE-316G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Recall the Goals, Issues, hardware & software concepts of the Distributed system.	L1 (Remember)
CO2	To Discuss the Communication & Synchronization Algorithms in Distributed System.	L2 (Understand)
CO3	To Apply Scheduling & Processor Allocation Techniques for Load balancing.	L3 (Apply)
CO4	To Analyze the Design & functioning of Distributed file System & Shared Memory.	L4 (Analyze)
CO5	To Examine the security issues of Distributed System & Distributed Web-based System.	L4 (Analyze)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	3	3
CO2	3	2										1	3	2
CO3	2	3	2									1	3	2
CO4	2	3	3									1	3	2
CO5	2	3	2									1	3	2

Course: PROJECT-I
Course Code: PROJ-CSE-322G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Define the problem identification, requirements and analyze the feasibility.	L2 (Understand)
CO2	To Demonstrate knowledge, skills of professional engineer and applying hypothesis on Problem.	L3 (Apply)
CO3	To Design and develop the solution for real-life engineering problems.	L6 (Create)
CO4	To Evaluate the developed system to solve real world problems.	L5 (Evaluate)
CO5	Ability to use formal & informal communication with team members and guide.	L3 (Apply)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1						2	2	3	1	3	3
CO2	2	3	2	2					2	2		1	2	3
CO3	2	2	3	2					2	2	2	1	3	2
CO4	2	2	2	3					2	2	2	1	2	3
CO5	2	2	2						3	3		1	2	3

Course: Compiler Design Lab
Course Code: LC-CSE-324-G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the concept of Lex/ Yacc Compilers.	L2 (Understand)
CO2	To Use various aspects like grammar, languages, operators, left recursion using practical experiments.	L3 (Apply)
CO3	To Analyze whether Regular Expressions belong to Grammar or not.	L4 (Analyze)
CO4	To Analyze Lexical Analyzer for validating operators.	L4 (Analyze)
CO5	To Evaluate the implementation of Operator Precedence Parser.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	2	3
CO2	2	3	2		2							1	2	2
CO3	2	2	3	2	2							1	1	2
CO4	2	2	3	2	2							1	2	3
CO5	2	2	2	3	2							1	3	2

Course: Artificial Intelligence Lab using Python
Course Code: LC-CSE-326G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Use Control Structures and Operators to write basic Python programming.	L3 (Apply)
CO2	To Analyze object-oriented concepts in Python.	L4 (Analyze)
CO3	To Evaluate the AI models pre-processed through various feature engineering algorithms by Python Programming.	L5 (Evaluate)
CO4	To Develop the code for the recommender system using Natural Language processing.	L6 (Create)
CO5	To Design various reinforcement algorithms to solve real-time complex problems.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	3	2
CO2	2	2	3		2							1	2	2
CO3	2	3	2		2							1	2	2
CO4	2	2	2	3	2							1	1	2
CO5	2	2	2	3	2							1	2	1

Course: Advanced Java Lab
Course Code: LC-CSE-328-G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Explain the basics of the Java.Net package	L2 (Understand)
CO2	To Demonstrate client-server interaction using Servlets.	L3 (Apply)
CO3	To Analyze applications to implement database interaction using JDBC.	L4 (Analyze)
CO4	To Develop Java Beans applications.	L6 (Create)
CO5	To Create server communication using TCP-IP and UDP.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	3	3
CO2	2	3	2		2							1	3	2
CO3	2	2	3	2	2							1	3	2
CO4	2	2	3	2	2							1	3	2
CO5	2	2	2	2	2							1	3	2

Course: Constitution of India
Course Code: MC-317-G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Understand the basic features of Constitution of India	L2 (Understand)
CO2	To Understand about salient features of the Constitution of India.	L2 (Understand)
CO3	To Understand fundamental duties and federal structure of Constitution of India.	L2 (Understand)
CO4	To Understand about emergency provisions in Constitution of India.	L2 (Understand)
CO5	To Understand about fundamental rights under Constitution of India.	L2 (Understand)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1						3		2				1	0	1
CO2						3		2				1	0	1
CO3						2		3				1	0	1
CO4						3		2				1	1	1
CO5						3		2				1	1	1

B.Tech. CSE 7th Semester

Course: Neural Networks
Course Code: PCC-CSE-401G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy's
CO1	To Understand the concept of Biological neurons and Activation function.	L2 (Understand)
CO2	To Describe the concepts ANN architecture in single and multi-layer Network.	L2 (Understand)
CO3	To Analyze various types of Models: MCP Model and Perceptron Network .	L4 (Analyze)
CO4	To Identify the types of Learning and their Learning concepts.	L4 (Analyze)
CO5	To Conceptualize about different types of Associative Memory.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	1	2
CO2	3	2	1									1	2	2
CO3	2	3	1									1	2	2
CO4	2	3	1									1	2	3
CO5	2	3	1									1	2	1

Course: Software Project Management (Professional Elective –IV)
Course Code: PEC-CSE-403G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy's
CO1	To Recall the fundamental principles of software project management.	L1 (Remember)
CO2	To Understand Estimation, Planning, And Tracking.	L2 (Understand)
CO3	To Recognize good knowledge of responsibilities of a project manager.	L2 (Understand)
CO4	To Interpret the importance of software quality and techniques to enhance software quality	L3 (Apply)
CO5	To Compare and differentiate organization structures and project structures.	L4 (Analyze)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3											2	2	3
CO2	2	3										2	1	2
CO3	2	2							2			2	2	3
CO4	2	2									3	2	3	1
CO5	2	3									2	2	2	1

Course: Web Mining (Professional Elective –IV)
Course Code: PEC-CSE-405G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Recall the basic concepts and techniques of Web Mining, Data Mining, and Web Mining Challenges.	L1 (Remember)
CO2	To Discuss the application of Swarm Intelligence Techniques in real-world problems.	L2 (Understand)
CO3	To Illustrate Information retrieval models and Web Content Mining.	L3 (Apply)
CO4	To Classify the concept of Computational Intelligence and Optimization algorithms.	L4 (Analyze)
CO5	To Assess the performance of different Swarm Intelligence Techniques.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3											1	2	2
CO2	2	2										1	2	2
CO3	2	2	2	1								1	2	2
CO4	2	2	1	3								1	2	2
CO5	2	1	2	2								1	1	1

Course: Advanced Computer Architecture (Professional Elective –V)
Course Code: PEC-CSE-417G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Discuss the computational model and micro architectural design of Advance Computer Architecture.	L2 (Understand)
CO2	To Describe various parallel processing techniques, performance measures and code scheduling.	L2 (Understand)
CO3	To Interpret the role of VLIW Superscalar processor and branch handling techniques for performance improvement.	L3 (Apply)
CO4	To Analyze various MIMD architecture, various static and dynamic networks for realizing the efficient network.	L4 (Analyze)
CO5	To Distinguish advance processor technology, memory hierarchy and cache tolerance using directory based and snoopy class of protocols.	L4 (Analyze)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	1	2
CO2	3	2	2									1	1	3
CO3	3	2	2									1	1	2
CO4	2	3	2									1	1	3
CO5	3	2	2	2								1	1	1

Course: Network Security and Cryptography (Professional Elective –V)
Course Code: PEC-CSE-411G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy's
CO1	To Understand various attacks and need of Cryptography.	L2 (Understand)
CO2	To Apply various substitution and transposition ciphers for securing a message.	L3 (Apply)
CO3	To Analyze the need and functioning of various block ciphers.	L4 (Analyze)
CO4	To Evaluate how to maintain the Confidentiality, Integrity and Availability.	L5 (Evaluate)
CO5	To Create various public key algorithm for securing the message.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	1	2
CO2	2	2	1									1	1	1
CO3	3	2	2									1	1	2
CO4	2	2	2									1	1	1
CO5	2	2	2	2								1	1	1

Course: Fundamentals of Management (Open Elective –I)
Course Code: HSMC-08G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the Basics of Management and the role of Management in an organization.	L2 (Understand)
CO2	To Explain the Importance of Staffing and Training.	L2 (Understand)
CO3	To Discuss the concept of Material management and Inventory Control.	L2 (Understand)
CO4	To Analyze the components of Marketing and Advertising.	L4 (Analyze)
CO5	To Assess the Various sources of Finance and Capital Structure.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1											3	2	1	2
CO2									3	2	2	2	1	2
CO3											3	2	1	2
CO4											3	2	1	2
CO5											3	2	1	2

Course: NEURAL NETWORKS USING MATLAB

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy's
CO1	To Understand basic neuron models and learning algorithms by using Matlab's neural network toolbox	L2 (Understand)
CO2	To Describe about different activation function (transfer function).	L2 (Understand)
CO3	To Analyze how weights & bias values affect the output of neuron.	L4 (Analyze)
CO4	To Identify how weights & bias values are able to represent a decision boundary in the feature space.	L4 (Analyze)
CO5	To Conceptualize about perceptron learning rule works for linearly separable problems.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										1	1	2
CO2	3	2	1		2							1	2	2
CO3	2	3	1		2							1	2	2
CO4	2	3	1		2							1	2	3
CO5	2	3	1		2							1	2	1

Course: PROJECT-II
Course Code: PROJ-CSE-423G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Define the problem identification, requirements and analyze the feasibility.	L2 (Understand)
CO2	To Demonstrate knowledge, skills of professional engineer and applying hypothesis on Problem.	L3 (Apply)
CO3	To Design and develop the solution for real-life engineering problems.	L6 (Create)
CO4	To Evaluate the developed system to solve real world problems.	L5 (Evaluate)
CO5	Ability to use formal & informal communication with team members and guide.	L3 (Apply)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1						2	2	3	1	3	3
CO2	2	3	2	2					2	2		1	2	3
CO3	2	2	3	2					2	2	2	1	3	2
CO4	2	2	2	3					2	2	2	1	2	3
CO5	2	2	2						3	3		1	2	3

B.Tech. CSE 8th Semester

Course: Machine Learning
Course Code: PCC-CSE-402G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the basic concept and the importance of Machine Learning.	L2 (Understand)
CO2	To Explain the Machine Learning Models and features of machine learning to apply to real world problems.	L2 (Understand)
CO3	To Apply the concept of Machine Learning algorithms as supervised learning and unsupervised learning	L3 (Apply)
CO4	To Analyze the Regression, Classification and Clustering Techniques of Machine learning.	L4 (Analyze)
CO5	To Evaluate various machine learning algorithms through statistical learning techniques.	L5 (Evaluate)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										2	3	2
CO2	3	2										2	2	1
CO3	2	2	3									2	3	2
CO4	2	2	3									2	3	3
CO5	2	2	3	1								2	2	1

Course: Big Data Analytics
Course Code: PCC-CSE-404G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the need for Big Data challenges, applications and their Business Implications.	L2 (Understand)
CO2	To Demonstrate the conceptual, logical, and physical Big Data Model.	L3 (Apply)
CO3	To Analyze the Big Data framework like Hadoop, and NOSQL to efficiently store and process Big Data to generate analytics.	L4 (Analyze)
CO4	To Classify the Workflow system for Big Data like Swift, Taverna, Kepler.	L4 (Analyze)
CO5	To Develop all-purpose big data pipeline architecture.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3											1	2	2
CO2	2	3										1	2	3
CO3	2	2	3	1								1	3	2
CO4	2	2	1	3								1	2	2
CO5	2	1	2	3								1	1	1

Course: Wireless Adhoc and Sensor Network (Open Elective-II)
Course Code: OEC-ECE-430G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the concepts, architectures, and applications of Wireless Ad Hoc and Sensor Networks.	L2 (Understand)
CO2	To Describe the MANETs and WSNs for industry and research point of views.	L2 (Understand)
CO3	To Classify the various Sensor Network Platforms, tools and applications.	L4 (Analyze)
CO4	To Evaluate the QoS related performance measurements of Wireless Ad Hoc and Sensor networks.	L5 (Evaluate)
CO5	To Design routing protocols for ad hoc systems.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	1	1	1							1	3	3
CO2	3	2	2	1	3							1	3	3
CO3	3	1	3	2	2							1	3	3
CO4	3	1	3	1	2							1	2	2
CO5	3	1	2	1	3							1	2	2

Course: Big Data Analytics Lab
Course Code: LC-CSE-410G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the key issues in Big Data Management and experiment with the Hadoop framework.	L2 (Understand)
CO2	To Explain the structure and unstructured data by using NoSQL commands.	L2 (Understand)
CO3	To Apply scientific computing algorithms for finding similar items and clustering.	L3 (Apply)
CO4	To Test fundamental enabling techniques and scalable algorithms for data stream mining.	L5 (Evaluate)
CO5	To Develop problem solving and critical thinking skills in fundamental enable techniques like Hadoop & MapReduce.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3											1	2	2
CO2	2	3			2							1	2	3
CO3	2	2	3	1	2							1	3	2
CO4	2	2	1	3	2							1	2	2
CO5	2	1	2	3	2							1	1	1

Course: Machine Learning with Python Lab
Course Code: LC-CSE-412G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Describe the implementation procedures for the Machine Learning algorithms.	L2 (Understand)
CO2	To Apply appropriate data sets to the Machine Learning algorithms.	L3 (Apply)
CO3	To Use Machine Learning algorithms to solve real-world problems.	L3 (Apply)
CO4	To Outline predictions using machine learning algorithms.	L4 (Analyze)
CO5	To Design Java/Python programs for various Machine Learning algorithms.	L6 (Create)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2		2								1	3	3
CO2	3	3	2									1	3	2
CO3	3	2	3	2								1	3	2
CO4	3		3	2								1	3	2
CO5	3	2		3								1	3	2

Course: PROJECT-III
Course Code: PROJ-CSE-422G

CO (Course Outcomes)		RBT*- Revised Bloom's Taxonomy
CO1	To Define the problem identification, requirements and analyze the feasibility.	L2 (Understand)
CO2	To Demonstrate knowledge, skills of professional engineer and applying hypothesis on Problem.	L3 (Apply)
CO3	To Design and develop the solution for real-life engineering problems.	L6 (Create)
CO4	To Evaluate the developed system to solve real world problems.	L6 (Evaluate)
CO5	Ability to use formal & informal communication with team members and guide.	L3 (Apply)

CO PO-PSO Articulation Matrices

Course Outcomes (COs)	(POs)												PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1						2	2	3	1	3	3
CO2	2	3	2	2					2	2		1	2	3
CO3	2	2	3	2					2	2	2	1	3	2
CO4	2	2	2	3					2	2	2	1	2	3
CO5	2	2	2						3	3		1	2	3