COURSE OUTCOMES FOR B.TECH-CSE R22 FOR THE YEAR 2022-2023

Course Outcome	Year/Semester I Sem	Subject Name (Subject Code) MATRICES AND CALCULUS(B22MA01)	No. of Hours L:3 T:1 P:0	Credits: 4
On successful completion of this course, students will be able to:				
1	Write the matrix representation of a set of linear equations and to analyse the solution of the system of equations			
2	Find the Eigen values and Eigen vectors. Reduce the quadratic form to canonical form using orthogonal transformations.			
3	Solve the applications on the mean value theorems.			
4	Evaluate the improper integrals using Beta and Gamma functions			
5	Find the extreme values of functions of two variables with/ without constraints. Evaluate the multiple integrals and apply the concept to find areas, volumes.			
Course Outcome	**Year /Semester I Sem**	**Subject Name (Subject Code)** ENGINEERING CHEMISTRY (B22CH01)	**No. of Hours L:3 T:1 P:0**	**Credits:4**
On successful completion of this course, students are able to:				
1	Students will acquire the basic knowledge of electrochemical procedures related to corrosion and its control.			
2	The students are able to understand the basic properties of water and its usage in domestic and industrial purposes			
3	They can learn the fundamentals and general properties of polymers and other engineering materials.			
4	They can predict potential applications of chemistry and practical utility in order to becomegood engineers and entrepreneurs.			
Course Outcome	**Year / semester I Sem**	**Subject Name (Subject Code)** PROGRAMMING FOR PROBLEM SOLVING(B22CS01)	**No. of Hours L:3 T:0 P:0**	**Credits:3**
After the completion of this course, the students should be able to				
1	To write algorithms and to draw flowcharts for solving problems. To convert the algorithms/flowcharts to C programs.			
2	To use arrays, pointers, strings and structures to write C programs.			
3	Ability to design and implement different types of file structures using standard methodology. To decompose a problem into functions and to develop modular reusable code. Searching and sorting problems			
4	To decompose a problem into functions and to develop modular reusable code.			
5	Searching and sorting problems.			
Course Outcome	**Year / semester I Sem**	**Subject Name (Subject Code)** BASIC ELECTRICAL ENGINEERING(B22EE03)	**No. of Hours L:2 T:0 P:0**	**Credits: 2**

After the completion of this course, the students should be able to				
1	Analyze circuit theorems, mesh and nodal analysis, series and parallel networks, Electrical power			
2	Gain knowledge on AC circuits, reactance, Impedance, Susceptance and Admittance and Power Factor			
3	Learn the working principle of DC motors, Transformers			
4	Understand the construction and performance characteristics of Electrical Machines			
5	Introduce components of Low Voltage Electrical Installations			
Course Outcome	**Year / semester I Sem**	**Subject Name (Subject Code)** COMPUTER AIDED ENGINEERING GRAPHICS(B22ME03)	**No. of Hours L:1 T:0 P:4**	**Credits: 3**
After the completion of this course, the students should be able to				
1	Apply computer aided drafting tools to create 2D and 3D objects sketch conics and different types of solids			
2	Appreciate the need of Sectional views of solids and Development of surfaces of solids			
3	Read and interpret engineering drawings			
4	Conversion of orthographic projection into isometric view and vice versa manually and by using computer aided drafting			
Course Outcome	**Year / semester I Sem**	**Subject Name (Subject Code)** ELEMENTS OF COMPUTER SCIENCE AND ENGINEERING(B22CS02)	**No. of Hours L:0 T:0 P:2**	**Credits: 1**
After the completion of this course, the students should be able to				
1	Know the working principles of functional units of a basic Computer			
2	Understand program development, the use of data structures and algorithms in problem solving.			
3	Know the need and types of operating system, database systems.			
4	Understand the significance of networks, internet, WWW and cyber security.			
5	Understand Autonomous systems, the application of artificial intelligence.			
Course Outcome	**Year / semester I Sem**	**Subject Name (Subject Code)** ENGINEERING CHEMISTRY LABORATORY(B22CH02)	**No. of Hours L:0 T:0 P:2**	**Credits:1**
After the completion of this course, the students should be able to				
1	Able to determine the hardness of water			
2	Able to perform methods such as conductometry, and potentiometry in order find out the concentrations or equivalence points of acid, and P^H of unknown solutions.			
3	Students are able to prepare polymers like bakelite and nylon-6,6.			
4	Estimations saponification value, and viscosity of lubricant oils.			
Course Outcome	**Year / semester I Sem**	**Subject Name (Subject Code)** PROGRAMMING FOR PROBLEM SOLVING LABORATORY(B22CS03)	**No. of Hours L:0 T:0 P:2**	**Credits: 1**
After the completion of this course, the students should be able to				

1	Understand basic structure of the C Programming, data types, declaration and usage of variables,control structures and all related concept.			
2	Ability to understand any algorithm and Write the C programming code in executable form.			
3	Implement Programs using functions, pointers and arrays, and use the pre- processors to solve realtime problems.			
4	Ability to use file structures and implement programs on files and Implement programs on sortingand searching techniques.			
Course Outcome	**Year / semester I Sem**	**Subject Name (Subject Code)** BASIC ELECTRICAL ENGINEERING LABORATORY(B22EE04)	**No. of Hours L:0 T:0 P:2**	**Credits: 1**
After the completion of this course, the students should be able to				
1	Verify the basic electrical circuits through different laws and theorems			
2	Analyse the transient responses of R, L and C circuits for DC excitation			
3	Create resonance condition in series R-L-C circuit			
4	Analyze the performance of DC shunt motor, single phase transformer and Three-phase Induction Motor.			

Course Outcome	Year / semester II Sem	Subject Name (Subject Code) ORDINARY DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS (B22MA02)	No. of Hours L:3 T:1 P:0	Credits: 4
After the completion of this course, the students should be able to				
1	Identify whether the given differential equation of first order is exact or not.			
2	Solve higher differential equation and apply the concept of differential equation to real world problems.			
3	Extend the basic concepts of differential calculus to vector functions in a simple and natural fashion.			
4	Extend the basic concepts of differential calculus to vector functions in a simple and natural fashion.			
5	Evaluate the line, surface and volume integrals and converting them from one to another.			
Course Outcome	**Year / semester II Sem**	**Subject Name (Subject Code)** APPLIED PHYSICS(B22PH01)	**No. of Hours L:3 T:1 P:0**	**Credits:4**
After the completion of this course, the students should be able to				
1	Understand physical world from fundamental point of view by the concepts of Quantum Mechanics and visualize the difference between conductor, semiconductor, and an insulator by classification of solids.			
2	Identify the role of semiconductor devices in science and engineering Applications			
3	Explore the fundamental properties of dielectric, magnetic materials and energy for their applications.			
4	Appreciate the features and applications of Nano materials.			
5	Understand various aspects of Lasers and Optical fibre and their applications in diverse Fields.			
Course Outcome	**Year / semester II Sem**	**Subject Name (Subject Code)** ENGINEERING WORKSHOP(B22ME01)	**No. of Hours L:0 T:1 P:3**	**Credits:2.5**
After the completion of this course, the students should be able to				
1	Study and practice on machine tools and their operations.			
2	Practice on manufacturing of components using workshop trades including pluming, fitting, carpentry, foundry, house wiring and welding.			
3	Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.			
4	Apply basic electrical engineering knowledge for house wiring practice.			
Course Outcome	**Year / semester II Sem**	**Subject Name (Subject Code)** ENGLISH FOR SKILL ENHANCEMENT (B22EN01)	**No. of Hours L:2 T:0 P:0**	**Credits:2**
After the completion of this course, the students should be able to				
1	Understand the importance of vocabulary and sentence structures.			
2	Choose appropriate vocabulary and sentence structures for their oral andwritten communication.			
3	Demonstrate their understanding of the rules of functional grammar.			
4	Develop comprehension skills using known and unknown passages.			
5	Take an active part in drafting paragraphs, letters, essays, abstracts, précis andreports in various contexts			
Course Outcome	**Year / semester II Sem**	**Subject Name (Subject Code)** ELECTRONIC DEVICES AND CIRCUITS (B22EC02)	**No. of Hours L:2 T:0 P:0**	**Credits: 2**

After the completion of this course, the students should be able to	
1	Acquire the knowledge of PN diode and its characteristics.
2	Design the rectifiers with and without filters for specified DC voltage.
3	Illustrate the voltage- current characteristics of Junction Transistor and different configurations of transistor
4	Acquire knowledge about the construction, theory and characteristics of FET and MOSFET.
5	Acquire the knowledge about the role of special purpose devices and their applications.

Course Outcome	Year / semester II Sem	Subject Name (Subject Code) APPLIED PHYSICS LABORATORY (B22PH02)	No. of Hours L:0 T:0 P:3	Credits: 1.5
After the completion of this course, the students should be able to				
1	Know the determination of the Planck's constant using Photo electric effect and identify the material whether it is n-type or p-type by Hall experiment.			
2	Appreciate quantum physics in semiconductor devices and optoelectronics.			
3	Gain the knowledge of applications of dielectric constant.			
4	Understand the variation of magnetic field and behavior of hysteresis curve.			
	Gain the knowledge of decay of chargeand determine time constant of RC circuit			

Course Outcome	Year / semester: II Sem	Subject Name(Subject Code) PYTHON PROGRAMMING LABORATORY(B22CS04)	No. of Hours L:0 T:1 P:2	Credits:2
1	Develop the application specific codes using python.			
2	Understand Strings, Lists, Tuples and Dictionaries in Python.			
3	Understand the structure of exception handling for all general purpose exceptions.			
4	Verify programs using modular approach, file I/O, Python standard library. Implement DigitalSystems using Python.			

Course Outcome	Year / semester II Sem	Subject Name (Subject Code) ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY(B22EN02)	No. of Hours L:0 T:0 P:2	Credits:1
After the completion of this course, the students should be able to				
1	Understand the nuances of English language through audio- visual experience and groupactivities.			
2	Neutralize their accent for intelligibility.			
3	Develop their listening skills so that they may appreciate its role in developing LSRW skills oflanguage and improve their pronunciation.			
4	Involve in speaking activities in various contexts.			
5	Speak with clarity and confidence which in turn enhance their employability skills.			

Course Outcome	Year / semester II Sem	Subject Name (Subject Code) IT WORKSHOP(B22CS05)	No. of Hours L:0 T:0 P:2	Credits: 1
After the completion of this course, the students should be able to				
1	Perform Hardware troubleshooting. Understand Hardware components and inter dependencies			
2	Safeguard computer systems from viruses/worms			
3	Perform calculations using spreadsheets.			
4	Document/ Presentation preparation			

Course Outcome	Year / semester II Sem	Subject Name (Subject Code) ENVIRONMENTAL SCIENCE(B22CH03)	No. of Hours L:3 T:0 P:0	Credits: 0
After the completion of this course, the students should be able to				
1	Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development			

Course Outcome	Year / semester III Sem	Subject Name (Subject Code) DIGITAL ELECTRONICS(B22EC12)	No. of Hours L:3 T:0 P:0	Credits: 3
After the completion of this course, the students should be able to				
1	Acquire the knowledge on numerical information in different forms and Boolean Algebra theorems for Combinational function minimization.			
2	Design logic circuits by applying minimization techniques and also able to characterize the various logic families for their AC and DC parameter's.			
3	Design and analyze various combination logic circuits and understand the fundamental's of sequential circuits .			
4	Design and analyze sequential circuits for various cyclic functions.			
5	Acquire the knowledge on concepts of Memories and PLA			

Course Outcome	Year / semester III Sem	Subject Name (Subject Code) DATA STRUCTURES(B22CS11)	No. of Hours L:3 T:0 P:0	Credits: 3
After the completion of this course, the students should be able to				
1	Ability to select the data structures that efficiently model the information in a problem.			
2	Ability to assess efficiency trade-offs among different data structure implementations or combinations.			
3	Implement and know the application of algorithms for sorting and pattern matching.			
4	Design programs using a variety of data structures, including hash tables, binary and general tree structures, search trees, tries, heaps, graphs, and AVL-trees.			

Course Outcome	Year/semester III Sem	Subject Name (Subject Code) COMPUTER ORIENTED STATISTICAL METHODS(B22MA04)	No. of Hours L:3 T:1 P:0	Credits:4
After the completion of this course, the students should be able to				
1	Apply the concepts of probability and distributions to case studies.			
2	Formulate and solve problems involving random variables and apply statistical methods foranalyzing experimental data.			
3	Apply concept of estimation and testing of hypothesis to case studies.			
4	Correlate the concepts of one unit to the concepts in other units.			

Course Outcome	Year / semester III Sem	Subject Name (Subject Code) COMPUTER ORGANIZATION AND ARCHITECTURE(B22CS12)	No. of Hours L:3 T:0 P:0	Credits: 3
After the completion of this course, the students should be able to				
1	Understand the basics of instruction sets and their impact on processor design.			
2	Demonstrate an understanding of the design of the functional units of a digital computer			

	system.			
3	Evaluate cost performance and design trade-offs in designing and constructing a computerprocessor including memory.			
4	Design a pipeline for consistent execution of instructions with minimum hazards.			
5	Recognize and manipulate representations of numbers stored in digital computers.			
Course Outcome	**Year / semester III Sem**	**Subject Name (Subject Code)** OBJECT ORIENTED PROGRAMMING THROUGH JAVA(B22CS13)	**No. of Hours L:3 T:0 P:0**	**Credits:3**
After the completion of this course, the students should be able to				
1	Demonstrate the behavior of programs involving the basic programming constructs like controlstructures, constructors, string handling and garbage collection.			
2	Demonstrate the implementation of inheritance (multilevel, hierarchical and multiple) by usingextend and implement keywords			
3	Use multithreading concepts to develop inter process communication.			
4	Understand the process of graphical user interface design and implementation using AWT orswings.			
5	Develop applets that interact abundantly with the client environment and deploy on the server.			
Course Outcome	**Year / semester III Sem**	**Subject Name (Subject Code)** DATA STRUCTURES LAB(B22CS14)	**No. of Hours L:0 T:0 P:3**	**Credits:1.5**
After the completion of this course, the students should be able to				
1	Ability to develop C programs for computing and real-life applications using basic elements like control statements, arrays, functions, pointers and strings, and data structures like stacks, queues and linked lists.			
2	Ability to Implement searching and sorting algorithms			
Course Outcome	**Year / semester III Sem**	**Subject Name (Subject Code)** OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB(B22CS15)	**No. of Hours L:0 T:0 P:3**	**Credits: 1.5**
After the completion of this course, the students should be able to				
1	Able to write programs for solving real world problems using the java collection framework.			
2	Able to write programs using abstract classes.			
3	Able to write multithreaded programs			
4	Able to write GUI programs using swing controls in Java.			
Course Outcome	**Year / semester III Sem**	**Subject Name (Subject Code)** DATA VISUALIZATION - R PROGRAMMING/ POWER BI(B22DS01)	**No. of Hours L:0T:0 P:2**	**Credits:1**
After the completion of this course, the students should be able to				
1	Understand How to import data into Tableau.			
2	Understand Tableau concepts of Dimensions and Measures.			
3	Develop Programs and understand how to map Visual Layouts and Graphical Properties.			
4	Create a Dashboard that links multiple visualizations.			
5	Use graphical user interfaces to create Frames for providing solutions to real world problems.			

Course Outcome	Year / semester III Sem	Subject Name (Subject Code) GENDER SENSITIZATION LAB(B22MC07)	No. of Hours L:0 T:0 P:2	Credits:0
After the completion of this course, the students should be able to				
1	Students will have developed a better understanding of important issues related to gender in contemporary India.			
2	Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature and film.			
3	Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.			
4	Students will acquire insight into the gendered division of labor and its relation to politics and economics.			
5	Men and women students and professionals will be better equipped to work and live together as equals.			
6	Students will develop a sense of appreciation of women in all walks of life.			
7	Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women, the textbook will empower students to understand and respond to gender violence.			
Course Outcome	Year / semester IV Sem	Subject Name (Subject Code) DISCRETE MATHEMATICS(B22CS16)	No. of Hours L:3 T:0 P:0	Credits:3
After the completion of this course, the students should be able to				
1	Understand and construct precise mathematical proofs			
2	Apply logic and set theory to formulate precise statements			
3	Analyze and solve counting problems on finite and discrete structures			
4	Describe and manipulate sequences			
5	Apply graph theory in solving computing problems			
Course Outcome	Year / semesterIV Sem	Subject Name (Subject Code) BUSINESS ECONOMICS AND FINANCIAL ANALYSIS(B22MB01)	No. of Hours L:3 T:0 P:0	Credits:3
After the completion of this course, the students should be able to				
1	The students will understand the various Forms of Business and the impact of economic variables on the Business. The Demand, Supply, Production, Cost, Market Structure, Pricingaspects are learnt. The Students can study the firm's financial position by analysing the Financial Statements of a Company			
Course Outcome	Year / semester IV Sem	Subject Name (Subject Code) OPERATING SYSTEMS(B22CS17)	No. of Hours L:3 T:0 P:0	Credits: 3
After the completion of this course, the students should be able to				
1	Will be able to control access to a computer and the files that may be shared			
2	Demonstrate the knowledge of the components of computers and their respective roles incomputing.			
3	Ability to recognize and resolve user problems with standard operating environments.			
4	Gain practical knowledge of how programming languages, operating systems, and architectures interact and how to use each effectively.			

Course Outcome	Year / semester IV Sem	Subject Name (Subject Code) DATABASE MANAGEMENT SYSTEMS (B22CS18)	No. of Hours L:3 T:0 P:0	Credits:3
After the completion of this course, the students should be able to				
1	Gain knowledge of fundamentals of DBMS, database design and normal forms			
2	Master the basics of SQL for retrieval and management of data.			
3	Be acquainted with the basics of transaction processing and concurrency control.			
4	Familiarity with database storage structures and access techniques			
Course Outcome	Year / semester Ⅳ Sem	Subject Name (Subject Code) SOFTWARE ENGINEERING (B22CS19)	No. of Hours L:3 T:0 P:0	Credits:3
After the completion of this course, the students should be able to				
1	Ability to translate end-user requirements into system and software requirements, using e.g.UML, and structure the requirements in a Software Requirements Document (SRD).			
2	Identify and apply appropriate software architectures and patterns to carry out high level designof a system and be able to critically compare alternative choices.			
3	Will have experience and/or awareness of testing problems and will be able to develop a simpletesting report			
Course Outcome	Year / semester ⅣSem	Subject Name (Subject Code) OPERATING SYSTEMS LAB(B22CS20)	No. of Hours L:0 T:0 P:2	Credits:1
After the completion of this course, the students should be able to				
1	Simulate and implement operating system concepts such as scheduling, deadlock management, file management and memory management.			
2	Able to implement C programs using Unix system calls			
Course Outcome	Year / semester Ⅳ Sem	Subject Name (Subject Code) DATABASE MANAGEMENT SYSTEMS LAB(B22CS21)	No. of Hours L:0 T:0 P:2	Credits:1
After the completion of this course, the students should be able to				
1	Design database schema for a given application and apply normalization			
2	Acquire skills in using SQL commands for data definition and data manipulation			
3	Develop solutions for database applications using procedures, cursors and triggers			
Course Outcome	Year / semester ⅣSem	Subject Name (Subject Code) NODE JS/ REACT JS/ DJANGO(B22CS23)	No. of Hours L:0 T:0 P:2	Credits:1
After the completion of this course, the students should be able to				
1	Build a custom website with HTML, CSS, and Bootstrap and little JavaScript.			
2	Demonstrate Advanced features of JavaScript and learn about JDBC			
3	Develop Server – side implementation using Java technologies lik			
4	Develop the server – side implementation using Node JS.			
5	Design a Single Page Application using React.			
Course Outcome	Year / semester ⅣSem	Subject Name (Subject Code) CONSTITUTION OF INDIA (B22MB10)	No. of Hours L:3 T:0 P:0	Credits:0

After the completion of this course, the students should be able to	
1	Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
2	Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
3	Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP]under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution
4	Discuss the passage of the Hindu Code Bill of 1956.