

DEPARTMENT OF HUMANITIES AND SCIENCES

ACADEMIC YEAR 2022-23

COMMON TO CSE, IT, CSE(DS)

YEAR: I

SEMISTER: I

REGULATION: R22

Course Name: Matrices and Calculus

Course Code: 22MA101BS

CO1	Write the matrix representation of a set of linear equations and to analyze the solution of the system of equations.
CO2	Find the Eigen values and Eigen vectors.
CO3	Reduce the quadratic form to canonical form using orthogonal transformations.
CO4	Solve the applications on the mean value theorems.
CO5	Evaluate the improper integrals using Beta and Gamma functions.
CO6	Find the extreme values of functions of two variables with/ without constraints.
CO7	Evaluate the multiple integrals and apply the concept to find areas, volumes.

Course Name: Engineering Chemistry

Course Code: 22CH102BS

CO1	The knowledge of atomic, molecular and electronic changes, band theory related to conductivity.
CO2	Students will acquire the basic knowledge of electrochemical procedures related to corrosion and its control.
CO3	The students are able to understand the basic properties of water and its usage in domestic and industrial purposes.
CO4	They can learn the fundamentals and general properties of polymers and other engineering materials.
CO5	They can predict potential applications of chemistry and practical utility in order to become good engineers and entrepreneurs.

Course Name: Programming for Problem Solving

Course Code: 22CS103ES

CO1	To write algorithms and to draw flowcharts for solving problems.
CO2	To convert the algorithms/flowcharts to C programs.
CO3	To code and test a given logic in the C programming language.
CO4	To decompose a problem into functions and to develop modular reusable code.
CO5	To use arrays, pointers, strings and structures to write C programs..
CO6	Searching and sorting problems.

Course Name: Basic Electrical Engineering

Course Code: 22EE104ES

CO1	Understand and analyze basic Electrical circuits.
CO2	Study the working principles of Electrical Machines and Transformers.
CO3	Introduce components of Low Voltage Electrical Installations.

Course Name: Computer Aided Engineering Graphics**Course Code: 22ME105ES**

CO1	Apply computer aided drafting tools to create 2D and 3D objects.
CO2	Sketch conics and different types of solids.
CO3	Appreciate the need of Sectional views of solids and Development of surfaces of solids.
CO4	Read and interpret engineering drawings.
CO5	Conversion of orthographic projection into isometric view and vice versa manually and by using computer aided drafting.

Course Name: Elements of Computer Science & Engineering**Course Code: 22CS106ES**

CO1	Know the working principles of functional units of a basic Computer.
CO2	Understand program development, the use of data structures and algorithms in problem solving.
CO3	Know the need and types of operating system, database systems.
CO4	Understand the significance of networks, internet, WWW and cyber security.
CO5	Understand Autonomous systems, the application of artificial intelligence.

Course Name: Engineering Chemistry Laboratory**Course Code: 22CH106BS**

CO1	Determination of parameters like hardness of water and rate of corrosion of mild steel in various conditions.
CO2	Able to perform methods such as conductometry, potentiometry and pH metry in order to find out the concentrations or equivalence points of acids and bases.
CO3	Students are able to prepare polymers like bakelite and nylon-6.
CO4	Estimations saponification value, surface tension and viscosity of lubricant oils.

Course Name: Basic Electrical Engineering Lab**Course Code: 22EE109ES**

CO1	Verify the basic Electrical circuits through different experiments.
CO2	Evaluate the performance calculations of Electrical Machines and Transformers through various testing methods.
CO3	Analyze the transient responses of R, L and C circuits for different input conditions.

Course Name: Programming for Problem Solving Laboratory**Course Code: 22CS108ES**

CO1	Formulate the algorithms for simple problems.
CO2	Translate given algorithms to a working and correct program.
CO3	Correct syntax errors as reported by the compilers.
CO4	Identify and correct logical errors encountered during execution.
CO5	Represent and manipulate data with arrays, strings and structures
CO6	Use pointers of different types
CO7	Create, read and write to and from simple text and binary files
CO8	Modularize the code with functions so that they can be reused

YEAR: I

SEMISTER: II

REGULATION: R22

Course Name: Ordinary Differential Equations and Vector Calculus

Course Code: 22MA201BS

CO1	Identify whether the given differential equation of first order is exact or not
CO2	Solve higher differential equation and apply the concept of differential equation to realworld problems.
CO3	Use the Laplace transforms techniques for solving ODE's.
CO4	Evaluate the line, surface and volume integrals and converting them from one to another.

Course Name: Applied Physics

Course Code: 22AP202BS

CO1	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.
CO2	Identify the role of semiconductor devices in science and engineering Applications.
CO3	Explore the fundamental properties of dielectric, magnetic materials and energy for their applications.
CO4	Appreciate the features and applications of Nanomaterials.
CO5	Understand various aspects of Lasers and Optical fiber and their applications in diverse fields.

Course Name: English for Skill Enhancement

Course Code: 22EN205HS

CO1	Understand the importance of vocabulary and sentence structures.
CO2	Choose appropriate vocabulary and sentence structures for their oral and written communication.
CO3	Demonstrate their understanding of the rules of functional grammar.
CO4	Develop comprehension skills from the known and unknown passages.
CO5	Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reportsin various contexts.
CO6	Acquire basic proficiency in reading and writing modules of English.

Course Name: Engineering Workshop

Course Code: 22ME203ES

CO1	Study and practice on machine tools and their operations.
CO2	Practice on manufacturing of components using workshop trades including plumbing, fitting, carpentry, foundry, house wiring and welding.
CO3	Identify and apply suitable tools for different trades of Engineering processes includingdrilling, material removing, measuring, chiseling.
CO4	Apply basic electrical engineering knowledge for house wiring practice.

Course Name: Electronic Devices and Circuits**Course Code: 22EC205PC**

CO1	Acquire the knowledge of various electronic devices and their use on real life.
CO2	Know the applications of various devices.
CO3	Acquire the knowledge about the role of special purpose devices and their applications.

Course Name: Applied Physics Laboratory**Course Code: 22AP205BS**

CO1	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.
CO2	Appreciate quantum physics in semiconductor devices and optoelectronics
CO3	Gain the knowledge of applications of dielectric constant.
CO4	Understand the variation of magnetic field and behavior of hysteresis curve.
CO5	Carried out data analysis.

Course Name: English Language and Communication Skills Laboratory**Course Code: 22EN207HS**

CO1	Understand the nuances of English language through audio- visual experience and groupactivities.
CO2	Neutralise their accent for intelligibility.
CO3	Speak with clarity and confidence which in turn enhances their employability skills.

Course Name: Python Programming Laboratory**Course Code: 22CS207ES**

CO1	Develop the application specific codes using python.
CO2	Understand Strings, Lists, Tuples and Dictionaries in Python.
CO3	Verify programs using modular approach, file I/O, Python standard library.
CO4	Implement Digital Systems using Python.

Course Name: IT Workshop**Course Code: 22CS209PC**

CO1	Perform Hardware troubleshooting.
CO2	Understand Hardware components and inter dependencies.
CO3	Safeguard computer systems from viruses/worms.
CO4	Document/ Presentation preparation.
CO5	Perform calculations using spreadsheets.

CIVIL ENGINEERING

YEAR: I

SEMISTER: I

REGULATION: R22

Course Name: Matrices and Calculus

Course Code: 22MA101BS

CO1	Write the matrix representation of a set of linear equations and to analyze the solution of the system of equations.
CO2	Find the Eigen values and Eigen vectors.
CO3	Reduce the quadratic form to canonical form using orthogonal transformations.
CO4	Solve the applications on the mean value theorems.
CO5	Evaluate the improper integrals using Beta and Gamma functions.
CO6	Find the extreme values of functions of two variables with/ without constraints.
CO7	Evaluate the multiple integrals and apply the concept to find areas, volumes.

Course Name: Applied Physics

Course Code: 22AP102BS

CO1	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.
CO2	Identify the role of semiconductor devices in science and engineering Applications.
CO3	Explore the fundamental properties of dielectric, magnetic materials and energy for their applications.
CO4	Appreciate the features and applications of Nanomaterials.
CO5	Understand various aspects of Lasers and Optical fiber and their applications in diverse fields.

Course Name: Programming for Problem Solving

Course Code: 22CS103ES

CO1	To write algorithms and to draw flowcharts for solving problems.
CO2	To convert the algorithms/flowcharts to C programs.
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CO5	To use arrays, pointers, strings and structures to write C programs.
CO6	Searching and sorting problems.

Course Name: Engineering Workshop

Course Code: 22ME104ES

CO1	Study and practice on machine tools and their operations.
CO2	Practice on manufacturing of components using workshop trades including plumbing, fitting, carpentry, foundry, house wiring and welding.
CO3	Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.
CO4	Apply basic electrical engineering knowledge for house wiring practice.

Course Name: English for Skill Enhancement**Course Code: 22EN105HS**

CO1	Understand the importance of vocabulary and sentence structures.
CO2	Choose appropriate vocabulary and sentence structures for their oral and written communication.
CO3	Demonstrate their understanding of the rules of functional grammar.
CO4	Develop comprehension skills from the known and unknown passages.
CO5	Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various contexts.
CO6	Acquire basic proficiency in reading and writing modules of English.

Course Name: Elements of Civil Engineering**Course Code: 22CE106PC**

CO1	Understands the method and ways of investigations required for Civil Engineering projects.
CO2	Identify the various rocks, minerals depending on geological classifications.
CO3	Evaluate the properties of cement, fine and coarse aggregates and determine its suitability for construction.

Course Name: Applied Physics Laboratory**Course Code: 22AP105BS**

CO1	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.
CO2	Appreciate quantum physics in semiconductor devices and optoelectronics.
CO3	Gain the knowledge of applications of dielectric constant.
CO4	Understand the variation of magnetic field and behavior of hysteresis curve.
CO5	Carried out data analysis.

Course Name: English Language and Communication Skills Laboratory**Course Code: 22EN107HS**

CO1	Understand the nuances of English language through audio- visual experience and groupactivities.
CO2	Neutralise their accent for intelligibility.
CO3	Speak with clarity and confidence which in turn enhances their employability skills.

Course Name: Programming for Problem Solving Laboratory**Course Code: 22CS108ES**

CO1	Formulate the algorithms for simple problems.
CO2	Translate given algorithms to a working and correct program.
CO3	Correct syntax errors as reported by the compilers.
CO4	Identify and correct logical errors encountered during execution.
CO5	Represent and manipulate data with arrays, strings and structures
CO6	Use pointers of different types
CO7	Create, read and write to and from simple text and binary files
CO8	Modularize the code with functions so that they can be reused

YEAR: I

SEMISTER: II

REGULATION: R22

Course Name: Ordinary Differential Equations and Vector Calculus Course Code: 22MA201BS

CO1	Identify whether the given differential equation of first order is exact or not.
CO2	Solve higher differential equation and apply the concept of differential equation to realworld problems.
CO3	Use the Laplace transforms techniques for solving ODE's.
CO4	Evaluate the line, surface and volume integrals and converting them from one to another.

Course Name: Engineering Chemistry

Course Code: 22CH202BS

CO1	The knowledge of atomic, molecular and electronic changes, band theory related to conductivity.
CO2	Students will acquire the basic knowledge of electrochemical procedures related to corrosion and its control.
CO3	The students are able to understand the basic properties of water and its usage in domesticand industrial purposes.
CO4	They can learn the fundamentals and general properties of polymers and other engineeringmaterials.
CO5	They can predict potential applications of chemistry and practical utility in order to become good engineers and entrepreneurs.

Course Name: Computer Aided Engineering Graphics

Course Code: 22ME205ES

CO1	Apply computer aided drafting tools to create 2D and 3D objects.
CO2	Sketch conics and different types of solids.
CO3	Appreciate the need of Sectional views of solids and Development of surfaces of solids.
CO4	Read and interpret engineering drawings.
CO5	Conversion of orthographic projection into isometric view and vice versa manually and by using computer aided drafting.

Course Name: Applied Mechanics

Course Code: 22CE204PC

CO1	Determine resultant of forces acting on a body and analyse equilibrium of a bodysubjected to a system of forces.
CO2	Solve problem of bodies subjected to friction.
CO3	Find the location of centroid and calculate moment of inertia of a given section.
CO4	Understand the kinetics and kinematics of a body undergoing rectilinear, curvilinear,rotator motion and rigid body motion.

Course Name: Surveying**Course Code: 22CE205PC**

CO1	Calculate angles, distances and levels.
CO2	Identify data collection methods and prepare field notes.
CO3	Understand the working principles of survey instruments.
CO4	Estimate measurement errors and apply corrections.
CO5	Interpret survey data and compute areas and volumes.

Course Name: Python Programming Laboratory**Course Code: 22CS207ES**

CO1	Develop the application specific codes using python.
CO2	Understand Strings, Lists, Tuples and Dictionaries in Python.
CO3	Verify programs using modular approach, file I/O, Python standard library.
CO4	Implement Digital Systems using Python.
CO5	

Course Name: Engineering Chemistry Laboratory**Course Code: 22CH206BS**

CO1	Determination of parameters like hardness of water and rate of corrosion of mild steel in various conditions.
CO2	Able to perform methods such as conductometry, potentiometry and pH metry in order to find out the concentrations or equivalence points of acids and bases.
CO3	Students are able to prepare polymers like bakelite and nylon-6.
CO4	Estimations saponification value, surface tension and viscosity of lubricant oils.

Course Name: Surveying Laboratory – I**Course Code: 22CE208PC**

CO1	Student will be able to prepare Map and Plan for required site with suitable scale.
CO2	Student will be able to prepare contour Map and Estimate the Quantity of earth work required for formation level for Road and Railway Alignment.
CO3	Student will be able to judge which type of instrument to be used for carrying out survey for a Particular Area and estimate the area.
CO4	Student will be able to judge the profile of ground by observing the available existing contour map.

Electronics and Communication Engineering

YEAR: I

SEMISTER: I

REGULATION: R22

Course Name: Matrices and Calculus

Course Code: 22MA101BS

CO1	Write the matrix representation of a set of linear equations and to analyze the solution of the system of equations.
CO2	Find the Eigen values and Eigen vectors.
CO3	Reduce the quadratic form to canonical form using orthogonal transformations.
CO4	Solve the applications on the mean value theorems.
CO5	Evaluate the improper integrals using Beta and Gamma functions.
CO6	Find the extreme values of functions of two variables with/ without constraints.
CO7	Evaluate the multiple integrals and apply the concept to find areas, volumes.

Course Name: Applied Physics

Course Code: 22AP102BS

CO1	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.
CO2	Identify the role of semiconductor devices in science and engineering Applications.
CO3	Explore the fundamental properties of dielectric, magnetic materials and energy for their applications.
CO4	Appreciate the features and applications of Nanomaterials.
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Course Name: Programming for Problem Solving

Course Code: 22CS103ES

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CO4	To decompose a problem into functions and to develop modular reusable code.
CO5	To use arrays, pointers, strings and structures to write C programs.
	Searching and sorting problems.

Course Name: Engineering Workshop

Course Code: 22ME104ES

CO1	Study and practice on machine tools and their operations.
CO2	Practice on manufacturing of components using workshop trades including plumbing, fitting, carpentry, foundry, house wiring and welding.
CO3	Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.
CO4	Apply basic electrical engineering knowledge for house wiring practice.

Course Name: English for Skill Enhancement**Course Code: 22EN105HS**

CO1	Understand the importance of vocabulary and sentence structures.
CO2	Choose appropriate vocabulary and sentence structures for their oral and written communication.
CO3	Demonstrate their understanding of the rules of functional grammar.
CO4	Develop comprehension skills from the known and unknown passages.
CO5	Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various contexts.
CO6	Acquire basic proficiency in reading and writing modules of English.

Course Name: Elements of Electronics and Communication Engineering**Course Code: 22EC101PC**

CO1	Identify the different components used for electronics applications.
CO2	Measure different parameters using various measuring instruments.
CO3	Distinguish various signal used for analog and digital communications.

Course Name: Applied Physics Laboratory**Course Code: 22AP105BS**

CO1	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.
CO2	Appreciate quantum physics in semiconductor devices and optoelectronics.
CO3	Gain the knowledge of applications of dielectric constant.
CO4	Understand the variation of magnetic field and behavior of hysteresis curve.
CO5	Carried out data analysis.

Course Name: English Language and Communication Skills Laboratory**Course Code: 22EN107HS**

CO1	Understand the nuances of English language through audio- visual experience and groupactivities.
CO2	Neutralise their accent for intelligibility.
CO3	Speak with clarity and confidence which in turn enhances their employability skills.

Course Name: Programming for Problem Solving Laboratory**Course Code: 22CS108ES**

CO1	Formulate the algorithms for simple problems.
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CO6	Use pointers of different types
CO7	Create, read and write to and from simple text and binary files
CO8	Modularize the code with functions so that they can be reused

YEAR: I

SEMISTER: II

REGULATION: R22

Course Name: Ordinary Differential Equations and Vector Calculus

Course Code: 22MA201BS

CO1	Identify whether the given differential equation of first order is exact or not.
CO2	Solve higher differential equation and apply the concept of differential equation to realworld problems.
CO3	Use the Laplace transforms techniques for solving ODE's.
CO4	Evaluate the line, surface and volume integrals and converting them from one to another.

Course Name: Engineering Chemistry

Course Code: 22CH202BS

CO1	The knowledge of atomic, molecular and electronic changes, band theory related to conductivity.
CO2	Students will acquire the basic knowledge of electrochemical procedures related to corrosion and its control.
CO3	The students are able to understand the basic properties of water and its usage in domesticand industrial purposes.
CO4	They can learn the fundamentals and general properties of polymers and other engineeringmaterials.
CO5	They can predict potential applications of chemistry and practical utility in order to become good engineers and entrepreneurs.

Course Name: Computer Aided Engineering Graphics

Course Code: 22ME205ES

CO1	Apply computer aided drafting tools to create 2D and 3D objects.
CO2	Sketch conics and different types of solids.
CO3	Appreciate the need of Sectional views of solids and Development of surfaces of solids.
CO4	Read and interpret engineering drawings.
CO5	Conversion of orthographic projection into isometric view and vice versa manually and by using computer aided drafting.

Course Name: Basic Electrical Engineering

Course Code: 22EE204ES

CO1	Understand and analyze basic Electrical circuits.
CO2	Study the working principles of Electrical Machines and Transformers.
CO3	Introduce components of Low Voltage Electrical Installations.

Course Name: Electronic Devices and Circuits

Course Code: 22EC201PC

CO1	Acquire the knowledge of various electronic devices and their use on real life.
CO2	Know the applications of various devices.
CO3	Acquire the knowledge about the role of special purpose devices and their applications.

Course Name: Python Programming Laboratory**Course Code: 22CS207ES**

CO1	Develop the application specific codes using python.
CO2	Understand Strings, Lists, Tuples and Dictionaries in Python.
CO3	Verify programs using modular approach, file I/O, Python standard library.
CO4	Implement Digital Systems using Python.

Course Name: Engineering Chemistry Laboratory**Course Code: 22CH206BS**

CO1	Determination of parameters like hardness of water and rate of corrosion of mild steel in various conditions.
CO2	Able to perform methods such as conductometry, potentiometry and pH metry in orderto find out the concentrations or equivalence points of acids and bases.
CO3	Students are able to prepare polymers like bake lite and nylon-6.
CO4	Estimations saponification value, surface tension and viscosity of lubricant oils.

Course Name: Basic Electrical Engineering Laboratory**Course Code: 22EE208ES**

CO1	Verify the basic Electrical circuits through different experiments.
CO2	Evaluate the performance calculations of Electrical Machines and Transformers throughvarious testing methods.
CO3	Analyze the transient responses of R, L and C circuits for different input conditions.

Course Name: Electronic Devices and Circuits Laboratory**Course Code: 22EE202PC**

CO1	Acquire the knowledge of various semiconductor devices and their use in real life.
CO2	Design aspects of biasing and keep them in active region of the device for functionalcircuits.
CO3	Acquire the knowledge about the role of special purpose devices and their applications.

Computer Science and Engineering (AIML)

YEAR: I

SEMISTER: I

REGULATION: R22

Course Name: Matrices and Calculus

Course Code: 22MA101BS

CO1	Write the matrix representation of a set of linear equations and to analyze the solution of the system of equations.
CO2	Find the Eigen values and Eigen vectors.
CO3	Reduce the quadratic form to canonical form using orthogonal transformations.
CO4	Solve the applications on the mean value theorems.
CO5	Evaluate the improper integrals using Beta and Gamma functions.
CO6	Find the extreme values of functions of two variables with/ without constraints.
CO7	Evaluate the multiple integrals and apply the concept to find areas, volumes.

Course Name: Applied Physics

Course Code: 22AP102BS

CO1	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.
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CO5	To use arrays, pointers, strings and structures to write C programs.
	Searching and sorting problems.

Course Name: Engineering Workshop

Course Code: 22ME104ES

CO1	Study and practice on machine tools and their operations.
CO2	Practice on manufacturing of components using workshop trades including plumbing, fitting, carpentry, foundry, house wiring and welding.
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CO4	Apply basic electrical engineering knowledge for house wiring practice.

Course Name: English for Skill Enhancement**Course Code: 22EN105HS**

CO1	Understand the importance of vocabulary and sentence structures.
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CO5	Understand Autonomous systems, the application of artificial intelligence.

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Course Name: Computer Aided Engineering Graphics

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Course Name: IT Workshop**Course Code: 22CS209PC**

CO1	Perform Hardware troubleshooting.
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