## 2018 Scheme

| Sl.No | Branch | Sem | Subject | CO,S |
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| 1 | Common (B.E) | 1st | 18CHE12 Engineering Chemistry | 1)Define and Describe the concept of engineering chemistry like electrodes , corrosion , energy system, environmental pollution and nano materials |
| | | | | 2)Discuss and Explain the concept involved in construction and working of cells, mechanism of corrosion , properties of nano materials,  chemical fuels & renewable energy resources |
| | | | | 3)Determine the electrochemical parameter, fuel characteristic , water quality parameters and discover solution to corrosion , air pollution and water treatment and preparation of nano materials Analyse and estimate quality and composition of materials and adopt suitable techniques for various engineering problems. |
| 2 | Common (B.E) | 1st | 18CPL17 C Programming Laboratory | 1) Identification of different components of a computer |
| | | | | 2) Develop different programming constructs for problem solving using C language |
| | | | | 3) Develop program in C language based on concepts of structure and pointers" |

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| | | | | 4) Using modular programming concepts develop solutions to a problem" |
| 3 | Common (B.E) | 1st | 18CHEL16 Engineering Chemistry Laboratory | 1) Handling various instrumentation techniques for quantitative estimation. |
| | | | | 2) Compile the data s, write the journal and generate the result |
| | | | | 3) Carryout quantitative analysis of material by volumetric methods |
| 4 | Common (B.E) | 1st | 18CPS13 C Programming For Problem Solving | 1)Understand the basics of computer hardware and software |
| | | | | 2) Understand the problem solving techniques using C programming constructs |
| | | | | 3) Develop programs in C language based on modular programming |
| | | | | 4) Implement the programs in C language based on the concepts of structures, pointers and pre processor directives. |
| 5 | Common (B.E) | 1st | 18EGH18 Technical English-1 | 1) Use Grammatical English and essentials of language skills and identify the nuances of phonetics, intonation and flawless pronunciation |
| | | | | 2) Identify common errors in spoken and written communication, Understand and improve the nonverbal communication and kinesics. |
| | | | | 3) Implement English vocabulary at command and language proficiency |
| | | | | 4) Prepare for general competitive exams. |
| 6 | Common (B.E) | 1st | 18ELN14 Basic Electronics | 1) Describe the operation of electronic devices |
| | | | | 2) Describe IC 555, IC LM78XX, Communication System and mobile phone with basic building blocks. |
| | | | | 3) Analyze the working of electronic circuits involving diodes, transistors, Op-amps and gates and their applications |
| | | | | 4) Design the circuits involving Diodes, Op-Amps and Gates. |
| | | | | 5)Present a video lecture on an electronic circuit or device and use simulator for building simple electronic circuits |

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| 7 | Common (B.E) | 1st | 18MAT11 Calculus And Linear Algebra | 1) To learn the importance of differentiation and partial differentiation for calculating the rate of change of single and multivariate functions. |
| | | | | 2) To analyse the different analytical methods to solve first order linear/ nonlinear equations, matrix theory for solving system of linear equations, eigen values ,Eigen vectors and diagonalization. |
| | | | | 3) Apply the knowledge of differential calculus to solve the problems related to polar curves composite functions, |
| | | | | 4) To apply the concept of change of variables and change the order of integration |
| | | | | 5) To evaluate multiple integrals. Use multiple integrals to find area and volume. |
| 8 | Common (B.E) | 1st | 18ME15 Elements Of Mechanical Engineering | 1) Understanding the concept of energy sources like solar, wind, hydel, nuclear and biomass energy |
| | | | | 2) Understand the working principles of boilers, prime movers such as turbines and IC engines, refrigeration, and air conditioning. |
| | | | | 3) Understand various engineering materials, machine tools, machining processes, and the concept of flexible manufacturing systems |
| 9 | Common (B.E) | 1st | 18CIV14 Elements of Civil Engineering and Mechanics | 1) Mention the applications of various fields of Civil Engineering |
| | | | | 2)Compute the resultant of given force system subjected to various loads |
| | | | | 3) Comprehend the action of Forces, Moments, and other loads on systems of rigid bodies and compute the reactive forces that develop as a result of the external loads |
| | | | | 4) Locate the Centroid and compute the Moment of Inertia of regular and built-up sections |
| | | | | 5) Express the relationship between the motion of bodies and analyze the bodies in motion |
| 10 | Common (B.E) | 1st | 18EGDL15 Engineering Graphics | 1)Understand BIS Standards for Engineering Drawing, Orthographic and Iso-Metric projections of geometrical Entities |
| | | | | 2) Draw the projection of Non-dimensional, One-dimensional, two-dimensional and Three-dimensional geometrical entities |
| | | | | 3) Apply the concept of Engineering Drawing in practical applications |
| 11 | Common (B.E) | 1st | 18EGH18 Technical English-I | 1)Use Grammatical English and essentials of language skills and identify the nuances of phonetics, intonation and flawless pronunciation |
| | | | | 2) Identify common errors in spoken and written communication, Understand and |

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| | | | | improve the nonverbal communication and kinesics. |
| | | | | 3) Implement English vocabulary at command and language proficiency. |
| | | | | 4) Prepare for general competitive exams. |
| 12 | Common (B.E) | 1st | 18ELE13 Basic Electrical Engineering | 1)Analyse D.C and A.C circuits |
| | | | | 2) Analysis of single-phase and three-phase AC circuit. |
| | | | | 3) Explain the principle of operation and construction of single-phase Transformer and discuss the concept of electrical wiring, circuit-protecting devices and earthing. |
| | | | | 4) Explain the principle of operation and construction of DC generators and DC motors. |
| | | | | 5) Explain the principle of operation and construction of three-phase Synchronous generator and three-phase Induction motors |
| 13 | Common (B.E) | 1st | 18ELEL17 Basic Electrical Engineering Laboratory | 1) Identify the common electrical components and measuring instruments used for conducting experiments in the electrical laboratory. |
| | | | | 2) Compare power factor of different lamps. |
| | | | | 3) Determine impedance of an electrical circuit and power consumed in a 3 phase load. |
| | | | | 4) Understand two way and three way control of lamps and measurement of earth resistance. |
| 14 | Common (B.E) | 1st | 18MAT11 Calculus and Linear Algebra | 1) To learn the importance of differentiation and partial differentiation for calculating the rate of change of single and multi variate functions. |
| | | | | 2) To analyse the different analytical methods to solve first order linear / nonlinear differential equations, matrix theory for solving system of linear equations, eigen values, eigen vectors and diagonalization. |
| | | | | 3) To apply the knowledge of differential and integral calculus to solve the problems related to polar curves, composite functions, jacobians, multiple integrals, area and volume. |
| 15 | Common (B.E) | 1st | 18PHY12 Physics | 1) Define: Simple harmonic motion, modulii of elasticity, numerical aperture, Fermi energy, & Eigen value and Eigen function |
| | | | | 2) Explain The concept of Damped and forced vibrations, Bending of beams, Torsion of a cylinder, Maxwell equations, & Quantisation of energy, Semiconductor and Carbon dioxide laser, dependence of fermi function on temperature, Hall e |
| | | | | 3) Apply Concept of resonance for tuning systems, shock waves in various fields, optical fibres in communication systems and Hall effect in electronic systems |

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| | | | | 4) Analyse: The importance of sharpness of resonance, failure of classical free electron theory, importance of laser in data storage and range finders, |
| 16 | Common (B.E) | 1st | 18PHYL16 Engineering Physics Laboratory | 1) Understand measurement techniques and usage of new instruments in engineering studies |
| | | | | 2) Construct and analyse electronic circuits and plot graphs |
| | | | | 3) Demonstrate the ability to prepare a valid laboratory record |

| Sl.No | Branch | Sem | Subject | CO,S |
|---|---|---|---|---|
| 1 | Common (B.E) | 2nd | 18CHE12 Engineering Chemistry | 1)Define and Describe the concept of engineering chemistry like electrodes , corrosion , energy system, environmental pollution and nano materials |
| | | | | 2)Discuss and Explain the concept involved in construction and working of cells, mechanism of corrosion , properties of nano materials,  chemical fuels & renewable energy resources |
| | | | | 3)Determine the electrochemical parameter, fuel characteristic , water quality parameters and discover solution to corrosion , air pollution and water treatment and preparation of nano materials Analyse and estimate quality and composition of materials and adopt suitable techniques for various engineering problems. |
| 2 | Common (B.E) | 2nd | 18CPL17 C Programming Laboratory | 1) Identification of different components of a computer |
| | | | | 2) Develop different programming constructs for problem solving using C language |
| | | | | 3) Develop program in C language based on concepts of structure and pointers" |

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| | | | | 4) Using modular programming concepts develop solutions to a problem" |
| 3 | Common (B.E) | 2nd | 18CHEL16 Engineering Chemistry Laboratory | 1) Handling various instrumentation techniques for quantitative estimation. |
| | | | | 2) Compile the data s, write the journal and generate the result |
| | | | | 3) Carryout quantitative analysis of material by volumetric methods |
| 4 | Common (B.E) | 2nd | 18CPS13 C Programming For Problem Solving | 1)Understand the basics of computer hardware and software |
| | | | | 2) Understand the problem solving techniques using C programming constructs |
| | | | | 3) Develop programs in C language based on modular programming |
| | | | | 4) Implement the programs in C language based on the concepts of structures, pointers and pre processor directives. |
| 5 | Common (B.E) | 2nd | 18EGH18 Technical English-1 | 1) Use Grammatical English and essentials of language skills and identify the nuances of phonetics, intonation and flawless pronunciation |
| | | | | 2) Identify common errors in spoken and written communication, Understand and improve the nonverbal communication and kinesics. |
| | | | | 3) Implement English vocabulary at command and language proficiency |
| | | | | 4) Prepare for general competitive exams. |
| 6 | Common (B.E) | 2nd | 18ELN14 Basic Electronics | 1) Describe the operation of electronic devices |
| | | | | 2) Describe IC 555, IC LM78XX, Communication System and mobile phone with basic building blocks. |
| | | | | 3) Analyze the working of electronic circuits involving diodes, transistors, Op-amps and gates and their applications |
| | | | | 4) Design the circuits involving Diodes, Op-Amps and Gates. |
| | | | | 5)Present a video lecture on an electronic circuit or device and use simulator for building simple electronic circuits |

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| 7 | Common (B.E) | 2nd | 18MAT11 Calculus And Linear Algebra | 1) To learn the importance of differentiation and partial differentiation for calculating the rate of change of single and multivariate functions. |
| | | | | 2) To analyse the different analytical methods to solve first order linear/ nonlinear equations, matrix theory for solving system of linear equations, eigen values ,Eigen vectors and diagonalization. |
| | | | | 3) Apply the knowledge of differential calculus to solve the problems related to polar curves composite functions, |
| | | | | 4) To apply the concept of change of variables and change the order of integration |
| | | | | 5) To evaluate multiple integrals. Use multiple integrals to find area and volume. |
| 8 | Common (B.E) | 2nd | 18ME15 Elements Of Mechanical Engineering | 1) Understanding the concept of energy sources like solar, wind, hydel, nuclear and biomass energy |
| | | | | 2) Understand the working principles of boilers, prime movers such as turbines and IC engines, refrigeration, and air conditioning. |
| | | | | 3) Understand various engineering materials, machine tools, machining processes, and the concept of flexible manufacturing systems |
| 9 | Common (B.E) | 2nd | 18CIV14 Elements of Civil Engineering and Mechanics | 1) Mention the applications of various fields of Civil Engineering |
| | | | | 2)Compute the resultant of given force system subjected to various loads |
| | | | | 3) Comprehend the action of Forces, Moments, and other loads on systems of rigid bodies and compute the reactive forces that develop as a result of the external loads |
| | | | | 4) Locate the Centroid and compute the Moment of Inertia of regular and built-up sections |
| | | | | 5) Express the relationship between the motion of bodies and analyze the bodies in motion |
| 10 | Common (B.E) | 2nd | 18EGDL15 Engineering Graphics | 1)Understand BIS Standards for Engineering Drawing, Orthographic and Iso-Metric projections of geometrical Entities |
| | | | | 2) Draw the projection of Non-dimensional, One-dimensional, two-dimensional and Three-dimensional geometrical entities |
| | | | | 3) Apply the concept of Engineering Drawing in practical applications |
| 11 | Common (B.E) | 2nd | 18EGH18 Technical English-I | 1)Use Grammatical English and essentials of language skills and identify the nuances of phonetics, intonation and flawless pronunciation |
| | | | | 2) Identify common errors in spoken and written communication, Understand and |

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| | | | | improve the nonverbal communication and kinesics. |
| | | | | 3) Implement English vocabulary at command and language proficiency. |
| | | | | 4) Prepare for general competitive exams. |
| 12 | Common (B.E) | 2nd | 18ELE13 Basic Electrical Engineering | 1)Analyse D.C and A.C circuits |
| | | | | 2) Analysis of single-phase and three-phase AC circuit. |
| | | | | 3) Explain the principle of operation and construction of single-phase Transformer and discuss the concept of electrical wiring, circuit-protecting devices and earthing. |
| | | | | 4) Explain the principle of operation and construction of DC generators and DC motors. |
| | | | | 5) Explain the principle of operation and construction of three-phase Synchronous generator and three-phase Induction motors |
| 13 | Common (B.E) | 2nd | 18ELEL17 Basic Electrical Engineering Laboratory | 1) Identify the common electrical components and measuring instruments used for conducting experiments in the electrical laboratory. |
| | | | | 2) Compare power factor of different lamps. |
| | | | | 3) Determine impedance of an electrical circuit and power consumed in a 3 phase load. |
| | | | | 4) Understand two way and three way control of lamps and measurement of earth resistance. |
| 14 | Common (B.E) | 2nd | 18MAT11 Calculus and Linear Algebra | 1) To learn the importance of differentiation and partial differentiation for calculating the rate of change of single and multi variate functions. |
| | | | | 2) To analyse the different analytical methods to solve first order linear / nonlinear differential equations, matrix theory for solving system of linear equations, eigen values, eigen vectors and diagonalization. |
| | | | | 3) To apply the knowledge of differential and integral calculus to solve the problems related to polar curves, composite functions, jacobians, multiple integrals, area and volume. |
| 15 | Common (B.E) | 2nd | 18PHY12 Physics | 1) Define: Simple harmonic motion, modulii of elasticity, numerical aperture, Fermi energy, & Eigen value and Eigen function |
| | | | | 2) Explain The concept of Damped and forced vibrations, Bending of beams, Torsion of a cylinder, Maxwell equations, & Quantisation of energy, Semiconductor and Carbon dioxide laser, dependence of fermi function on temperature, Hall e |
| | | | | 3) Apply Concept of resonance for tuning systems, shock waves in various fields, optical fibres in communication systems and Hall effect in electronic systems |

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| | | | | 4) Analyse: The importance of sharpness of resonance, failure of classical free electron theory, importance of laser in data storage and range finders, |
| 16 | Common (B.E) | 2nd | 18PHYL16 Engineering Physics Laboratory | 1) Understand measurement techniques and usage of new instruments in engineering studies |
| | | | | 2) Construct and analyse electronic circuits and plot graphs |
| | | | | 3) Demonstrate the ability to prepare a valid laboratory record |

## 21 SCHEME

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|---|---|---|---|---|
| 1 | Common (B.E) | 1st | 21CHE12 Engineering Chemistry | 1) Define and describe the concepts of chemistry in engineering and technological application |
| | | | | 2) Apply the knowledge of chemistry in solving engineering and societal problems |
| | | | | 3) Analyze and determine the quality and composition of engineering material suitable for technological applications |
| | | | | 4) Adopt instrumentation techniques for material characterization. |
| 2 | Common (B.E) | 1st | 21CHEL16 Engineering Chemistry Laboratory | 1) Handling various instrumentation techniques for quantitative estimation of analyte |
| | | | | 2) Carryout quantitative analysis of materials by volumetric method |
| | | | | 3) Compile the data's, write the journal and generate the result. |
| 3 | Common (B.E) | 1st | 21CPL17 Computer Programming Laboratory | 1)Explain problem statements and identify appropriate solutions |
| | | | | 2) Demonstrate the use of IDE, C Compiler, and identify and rectify the syntax and syntactic errors during programming |

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| | | | | 3) Development of algorithms and programs using constructs of C programming language. |
| | | | | 4) Reporting the observations |
| 4 | Common (B.E) | 1st | 21EGH18 Communicative English | 1) Understand and apply the Fundamentals of Communication Skills in their communication skills. Identify the nuances of phonetics, intonation and enhance pronunciation skills. |
| | | | | 2) To impart basic English grammar and essentials of language skills as per present requirement. |
| | | | | 3) Understand and use all types of English vocabulary and language proficiency & Adopt the Techniques of Information Transfer through presentation. |
| 5 | Common (B.E) | 1st | 21ELN14 Basic Electronics & Communication Engineering | 1) Describe the concepts of electronic circuits encompassing power supplies, amplifiers and oscillators. |
| | | | | 2) Present the basics of digital logic engineering including data representation, circuits and the microcontroller system with associated sensors and actuators. |
| | | | | 3) Discuss the characteristics and technological advances of embedded systems. |
| | | | | 4) Relate to the fundamentals of communication engineering spanning from the frequency spectrum to the various circuits involved including antennas. |
| | | | | 5) Explain the different modes of communications from wired to wireless and the computing involved. |
| 6 | Common (B.E) | 1st | 21EME15 Elements of Mechanical Engineering | 1) Understand basic concepts of mechanical engineering in the fields of energy and its utilization, materials technology, manufacturing techniques, and transmission systems through demonstrations. |

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| | | | | 2) Understand the application of energy sources in Power generation and utilization, Engineering materials, manufacturing, and machining techniques leading to the latest advancements and transmission systems in day to day activities |
| | | | | 3) Apply the skills in developing simple mechanical elements and processes |
| 7 | Common (B.E) | 1st | 21MAT11<br>Calculus & Differential Equations | 1) Apply the knowledge of calculus to solve problems related to polar curves and its applications in determining the bentness of a curve. |
| | | | | 2) Learn the notion of partial differentiation to calculate rate of change of multivariate functions and solve problems related to composite functions and Jacobian. |
| | | | | 3) Solve first-order linear/nonlinear ordinary differential equations analytically using standard methods. |
| | | | | 4) Demonstrate various models through higher order differential equations and solve such linear ordinary differential equations. |
| | | | | 5) Test the consistency of a system of linear equations and to solve them by direct and iterative methods. |
| 8 | Common (B.E) | 1st | 21PSP13<br>Problem-Solving through Programming | 1) Elucidate the basic architecture and functionalities of a computer and also recognize the hardware parts. |
| | | | | 2) Apply programming constructs of C language to solve the real world problem |
| | | | | 3) Explore user-defined data structures like arrays in implementing solutions to problems like searching and sorting |

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| | | | | 4) Design and Develop Solutions to problems using modular programming constructs using functions |
| 9 | Common (B.E) | 1st | 21CIV14<br>Elements of Civil Engineering and Mechanics | 1) Understand the various fields of civil engineering. |
| | | | | 2) Compute the resultant of a force system and resolution of a force. |
| | | | | 3) Comprehend the action for forces, moments, and other types of loads on rigid bodies and compute the reactive forces. |
| | | | | 4) Locate the centroid and compute the moment of inertia of regular and built-up sections. |
| | | | | 5) Analyze the bodies in motion. |
| 10 | Common (B.E) | 1st | 21EGH18<br>Communicative English | 1) Understand and apply the Fundamentals of Communication Skills in their communication skills. Identify the nuances of phonetics, intonation and enhance pronunciation skills. |
| | | | | 2) To impart basic English grammar and essentials of language skills as per present requirement. |
| | | | | 3) Understand and use all types of English vocabulary and language proficiency .Adopt the Techniques of Information Transfer through presentation. |
| 11 | Common (B.E) | 1st | 21ELE13<br>Basic Electrical Engineering | 1) Analyse Basic DC Electric Circuits. |
| | | | | 2) Analyse Basic AC Electric Circuits. |
| | | | | 3) Explain the working principles of Transformers and DC Electrical Machines |
| | | | | 4) Explain the working principles of Three phase Induction Motors and Synchronous Generators. |
| | | | | 5) Explain the concepts of electric power transmission, Electricity billing and personal safety measures. |

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| 12 | Common (B.E) | 1st | 21ELEL17<br>Basic Electrical Engineering Laboratory | 1) Verify KCL, KVL and maximum power transfer theorem for DC circuits. |
| | | | | 2) Compare power factors of different types of lamps and measure choke coil parameters. |
| | | | | 3) Demonstrate the measurement of the impedance of an electrical circuit and power consumed by a 3-phase load. Efficiency of a single-phase transformer by direct load test |
| | | | | 4) Analyze two-way and three-way control of lamps. Interpret the suitability of earth resistance measured. |
| | | | | 5) Explain the effects of open and short circuits in simple circuits. |
| 13 | Common (B.E) | 1st | 21EVNL15<br>Engineering Visualization | 1) Understand and visualize the objects with definite shape and dimensions. |
| | | | | 2) Analyze the shape and size of objects through different views |
| | | | | 3) Develop the lateral surfaces of the object. |
| | | | | 4) Create a 3D view using CAD software. |
| | | | | 5) Identify the interdisciplinary engineering approach through its graphical representation. |
| 14 | Common (B.E) | 1st | 21IDT19<br>Innovation and Design Thinking | 1) To explain the concept of design thinking for product and service development. |
| | | | | 2) To explain the fundamental concept of innovation and design thinking. |
| | | | | 3) To discuss the methods of implementing design thinking in the real world. |
| | | | | 4) Generate and Develop design ideas through different techniques |
| | | | | 5) Case Studies and real-time product examples for better understanding of concepts |
| | | | | 6) Activities on innovation and creativity to provide hands-on experience. |

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| 15 | Common (B.E) | 1st | 21MAT11 Calculus & Differential Equations | 1) Apply the knowledge of calculus to solve problems related to polar curves and its applications in determining the bentness of a curve. |
| | | | | 2) Learn the notion of partial differentiation to calculate rate of change of multivariate functions and solve problems related to composite functions and Jacobian. |
| | | | | 3) Solve first-order linear/nonlinear ordinary differential equations analytically using standard methods. |
| | | | | 4) Demonstrate various models through higher order differential equations and solve such linear ordinary differential equations. |
| | | | | 5) Test the consistency of a system of linear equations and to solve them by direct and iterative methods. |
| 16 | Common (B.E) | 1st | 21PHY12 Engineering Physics | 1) Interpret the types of mechanical vibrations and their applications |
| | | | | 2) Demonstrate the quantisation of energy for microscopic system |
| | | | | 3) Apply LASER and Optical fibers in opto-elctronic systems |
| | | | | 4) Illustrate merits of Quantum free electron theory and the applications of Hall effect |
| | | | | 5) Analyse the importance of XRD and Electron Microscopy in nanomaterial characterisation |
| 17 | Common (B.E) | 1st | 21PHYL16 Engineering Physics Laboratory | 1) Compare various measurement techniques involved in Physics |
| | | | | 2) Construct and analyse electronic circuits and plot graphs |
| | | | | 3)Estimate the error in measurements |
| | | | | 4) Demonstrate the ability to prepare a valid laboratory record |

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| 1 | Common (B.E) | 2nd | 21CHE12 Engineering Chemistry | 1) Define and describe the concepts of chemistry in engineering and technological application |
| | | | | 2) Apply the knowledge of chemistry in solving engineering and societal problems |
| | | | | 3) Analyze and determine the quality and composition of engineering material suitable for technological applications |
| | | | | 4) Adopt instrumentation techniques for material characterization. |
| 2 | Common (B.E) | 2nd | 21CHEL16 Engineering Chemistry Laboratory | 1) Handling various instrumentation techniques for quantitative estimation of analyte |
| | | | | 2) Carryout quantitative analysis of materials by volumetric method |
| | | | | 3) Compile the data's, write the journal and generate the result. |
| 3 | Common (B.E) | 2nd | 21CPL17 Computer Programming Laboratory | 1)Explain problem statements and identify appropriate solutions |
| | | | | 2) Demonstrate the use of IDE, C Compiler, and identify and rectify the syntax and syntactic errors during programming |
| | | | | 3) Development of algorithms and programs using constructs of C programming language. |
| | | | | 4) Reporting the observations |
| 4 | Common (B.E) | 2nd | 21EGH18 Communicative English | 1) Understand and apply the Fundamentals of Communication Skills in their communication skills. Identify the nuances of phonetics, intonation and enhance pronunciation skills. |
| | | | | 2) To impart basic English grammar and essentials of language skills as per present requirement. |

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| | | | | 3) Understand and use all types of English vocabulary and language proficiency & Adopt the Techniques of Information Transfer through presentation. |
| 5 | Common (B.E) | 2nd | 21ELN14<br>Basic Electronics & Communication Engineering | 1) Describe the concepts of electronic circuits encompassing power supplies, amplifiers and oscillators. |
| | | | | 2) Present the basics of digital logic engineering including data representation, circuits and the microcontroller system with associated sensors and actuators. |
| | | | | 3) Discuss the characteristics and technological advances of embedded systems. |
| | | | | 4) Relate to the fundamentals of communication engineering spanning from the frequency spectrum to the various circuits involved including antennas. |
| | | | | 5) Explain the different modes of communications from wired to wireless and the computing involved. |
| 6 | Common (B.E) | 2nd | 21EME15<br>Elements of Mechanical Engineering | 1) Understand basic concepts of mechanical engineering in the fields of energy and its utilization, materials technology, manufacturing techniques, and transmission systems through demonstrations. |
| | | | | 2) Understand the application of energy sources in Power generation and utilization, Engineering materials, manufacturing, and machining techniques leading to the latest advancements and transmission systems in day to day activities |
| | | | | 3) Apply the skills in developing simple mechanical elements and processes |
| 7 | Common (B.E) | 2nd | | 1) Apply the knowledge of calculus to solve problems related to polar curves and its |

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| | | | 21MAT11<br>Calculus & Differential Equations | applications in determining the bentness of a curve. |
| | | | | 2) Learn the notion of partial differentiation to calculate rate of change of multivariate functions and solve problems related to composite functions and Jacobian. |
| | | | | 3) Solve first-order linear/nonlinear ordinary differential equations analytically using standard methods. |
| | | | | 4) Demonstrate various models through higher order differential equations and solve such linear ordinary differential equations. |
| | | | | 5) Test the consistency of a system of linear equations and to solve them by direct and iterative methods. |
| 8 | Common (B.E) | 2nd | 21PSP13<br>Problem-Solving through Programming | 1) Elucidate the basic architecture and functionalities of a computer and also recognize the hardware parts. |
| | | | | 2) Apply programming constructs of C language to solve the real world problem |
| | | | | 3) Explore user-defined data structures like arrays in implementing solutions to problems like searching and sorting |
| | | | | 4) Design and Develop Solutions to problems using modular programming constructs using functions |
| 9 | Common (B.E) | 2nd | 21CIV14<br>Elements of Civil Engineering and Mechanics | 1) Understand the various fields of civil engineering. |
| | | | | 2) Compute the resultant of a force system and resolution of a force. |
| | | | | 3) Comprehend the action for forces, moments, and other types of loads on rigid bodies and compute the reactive forces. |

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| | | | | 4) Locate the centroid and compute the moment of inertia of regular and built-up sections. |
| | | | | 5) Analyze the bodies in motion. |
| 10 | Common (B.E) | 2nd | 21EGH18 Communicative English | 1) Understand and apply the Fundamentals of Communication Skills in their communication skills. Identify the nuances of phonetics, intonation and enhance pronunciation skills. |
| | | | | 2) To impart basic English grammar and essentials of language skills as per present requirement. |
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| 11 | Common (B.E) | 2nd | 21ELE13 Basic Electrical Engineering | 1) Analyse Basic DC Electric Circuits. |
| | | | | 2) Analyse Basic AC Electric Circuits. |
| | | | | 3) Explain the working principles of Transformers and DC Electrical Machines |
| | | | | 4) Explain the working principles of Three phase Induction Motors and Synchronous Generators. |
| | | | | 5) Explain the concepts of electric power transmission, Electricity billing and personal safety measures. |
| 12 | Common (B.E) | 2nd | 21ELEL17 Basic Electrical Engineering Laboratory | 1) Verify KCL, KVL and maximum power transfer theorem for DC circuits. |
| | | | | 2) Compare power factors of different types of lamps and measure choke coil parameters. |
| | | | | 3) Demonstrate the measurement of the impedance of an electrical circuit and power consumed by a 3-phase load. Efficiency of a single-phase transformer by direct load test |

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| | | | | 4) Analyze two-way and three-way control of lamps. Interpret the suitability of earth resistance measured. |
| | | | | 5) Explain the effects of open and short circuits in simple circuits. |
| 13 | Common (B.E) | 2nd | 21EVNL15 Engineering Visualization | 1) Understand and visualize the objects with definite shape and dimensions. |
| | | | | 2) Analyze the shape and size of objects through different views |
| | | | | 3) Develop the lateral surfaces of the object. |
| | | | | 4) Create a 3D view using CAD software. |
| | | | | 5) Identify the interdisciplinary engineering approach through its graphical representation. |
| 14 | Common (B.E) | 2nd | 21IDT19 Innovation and Design Thinking | 1) To explain the concept of design thinking for product and service development. |
| | | | | 2) To explain the fundamental concept of innovation and design thinking. |
| | | | | 3) To discuss the methods of implementing design thinking in the real world. |
| | | | | 4) Generate and Develop design ideas through different techniques |
| | | | | 5) Case Studies and real-time product examples for better understanding of concepts |
| | | | | 6) Activities on innovation and creativity to provide hands-on experience. |
| 15 | Common (B.E) | 2nd | | 1) Apply the knowledge of calculus to solve problems related to polar curves and its applications in determining the bentness of a curve. |
| | | | | 2) Learn the notion of partial differentiation to calculate rate of change of multivariate functions and solve problems related to composite functions and Jacobian. |

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| | | | 21MAT11<br>Calculus & Differential Equations | 3) Solve first-order linear/nonlinear ordinary differential equations analytically using standard methods. |
| | | | | 4) Demonstrate various models through higher order differential equations and solve such linear ordinary differential equations. |
| | | | | 5) Test the consistency of a system of linear equations and to solve them by direct and iterative methods. |
| 16 | Common (B.E) | 2nd | 21PHY12<br>Engineering Physics | 1) Interpret the types of mechanical vibrations and their applications |
| | | | | 2) Demonstrate the quantisation of energy for microscopic system |
| | | | | 3) Apply LASER and Optical fibers in opto-elctronic systems |
| | | | | 4) Illustrate merits of Quantum free electron theory and the applications of Hall effect |
| | | | | 5) Analyse the importance of XRD and Electron Microscopy in nanomaterial characterisation |
| 17 | Common (B.E) | 2nd | 21PHYL16<br>Engineering Physics Laboratory | 1) Compare various measurement techniques involved in Physics |
| | | | | 2) Construct and analyse electronic circuits and plot graphs |
| | | | | 3)Estimate the error in measurements |
| | | | | 4) Demonstrate the ability to prepare a valid laboratory record |