SAI RAM INSTITUTE OF TECHNOLOGY

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Sai Leo Nagar, West Tambaram, Chennai - 600 044. www.sairamit.edu.in

PROGRAM OUTCOMES (POS)
COMMON TO ALL UNDER GRADUATE BRANCHES
REGULATION 2020 AUTONOMOUS

B.E. ARTIFICIAL INTELLIGENCE & DATA SCIENCE, B.E. COMPUTER AND COMMUNICATION ENGINEERING, B.E. COMPUTER SCIENCE ENGINEERING, B.E. ELECTRONICS AND COMMUNICATION ENGINEERING B.E. ELECTRICAL AND ELECTRONICS ENGINEERING B.TECH. INFORMATION TECHNOLOGY AND B.E. MECHANICAL ENGINEERING

1. Engineering knowledge: Apply the basic principle and knowledge of mathematics, science and engineering principles to solve technical problems.

2. Problem Analysis: Identify and analyze complex engineering problems reaching logical conclusions using the basic principles of mathematics, science and engineering.

3. Development of solutions: Design solutions for well-defined technical problems and assist with the design of systems, components or processes to meet specified needs.

4. Investigate complex problems: Perform investigations, use research based knowledge and conduct experiments, analyze and interpret the results to provide valid conclusions.

5. Modern tool usage: Create, select and apply the latest techniques, resources and modern engineering / IT tools to develop appropriate solutions with an understanding of the limitations.

6. The Engineer and Society:Apply reasoning based on contextual knowledge to assess societal, legal and cultural issues with competency in professional engineering practices

7. Environment and Sustainability: Demonstrate professional skills, knowledge and contextual reasoning to assess / environmental / societal issues for sustainable development.

8. Apply ethical principles: Apply ethical principles and commit to professional ethics and responsibilities based on the norms of professional engineering practices

9. Individual & Teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multi-disciplinary professional settings.

10. Communicate effectively: Communicate effectively amongst the engineering community, being able to comprehend & write effective reports, make presentations & give/receive clear instructions

11. Project management: Demonstrate knowledge and apply the principles of engineering & management in their own / team projects in multidisciplinary environments

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

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PROGRAM OUTCOMES (POS

POST GRADUATE PROGRAM

MASTER OF BUSINESS ADMINISTRATION (GENERAL)

1. Business Knowledge : Learn business knowledge for understanding business problems and to sort out feasible solution

2. Strategic Thinking and Problem Solving Skills: Implication of theories into practicality that help in strategic planning, analysis and feasible execution.

3. Communication Skill development: Develop different forms of communication that matches modern business scenario.

4. Leadership and Team building: Unleashes the hidden leadership potentials among students and develop their qualities to be a new age leader and an effective team player.

5. Entrepreneurial Skill development: Enhances newer ways of data sourcing, risk analysis and management required for entrepreneur.

6. Global Perspective: Provides the students with the global business and cultural exposure to adopt for international business environment.

7. Ethical Orientation : Practice professional ethical principles in all spheres of business.

8. Sustainable Development : Gain functional insights that lead to sustainable development in business

9. Lifelong Learning : Nurturing individual values for self-development and practices lifelong learning through competency development.

M.E INDUSTRIAL SAFETY ENGINEERING

1. Apply knowledge of Mathematics, Science, Engineering fundamentals and an engineering Specialization for hazard identification, risk assessment, analysis the source of incidents and control of occupational Dieses & hazards.

2. Design, Establish, Implement maintain and continually improve an occupation health and safety management system to improve safety.

3. Conduct investigations on unwanted incidents using e.g. (Root cause analysis, what if analysis) and generate corrective and preventive action to prevent repetition and happening of such incidents.

4. Design complex man, machine, and material handling systems using human factors engineering tools so as to achieve comfort, worker satisfaction, efficiency, error free and safe work practice workplace environment.

5. Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings so as to provide practical solutions to safety problems.

6. Communicate effectively on occupational health and safety matters among the employees and with society at large.

7. Demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to occupation health and safety practices.

8. Understand and commit to comply with legal and contractual requirements, professional ethics and responsibilities and general norms of engineering practice.

9. Understand the impact of Health safety and environment solutions on productivity, quality and humanity protection at large.

10. Demonstrate the use of state of the art occupational health and safety practices in controlling risks of complex engineering activities and understand their limitations.

M.E BIG DATA ANALYTICS:

1. Apply knowledge of Mathematics, Science, Engineering fundamentals and an engineering Specialization for hazard identification, risk assessment, analysis the source of incidents and control of occupational Dieses & hazards.

2. Design, Establish, Implement maintain and continually improve an occupation health and safety management system to improve safety.

3. Conduct investigations on unwanted incidents using e.g. (Root cause analysis, what if analysis) and generate corrective and preventive action to prevent repetition and happening of such incidents.

4. Design complex man, machine, and material handling systems using human factors engineering tools so as to achieve comfort, worker satisfaction, efficiency, error free and safe work practice workplace environment.

5. Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings so as to provide practical solutions to safety problems.

6. Communicate effectively on occupational health and safety matters among the employees and with society at large.

7. Demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to occupation health and safety practices.

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PROGRAM SPECIFIC OBJECTIVES (PSOs)

B.E. ARTIFICIAL INTELLIGENCE & DATA SCIENCE

1. Apply the concepts and practical knowledge in analysis, design and development of computing systems and applications to multi-disciplinary problems.

2. To provide a concrete foundation and enrich their abilities to qualify for Employment, Higher studies and Research in Artificial Intelligence and Data science with ethical values

B.E. COMPUTER AND COMMUNICATION ENGINEERING

1. Apply appropriate technology for the implementation of modern communication systems

2. Develop quality software for scientific and business applications by applying software engineering principles and practices.

B.E. COMPUTER SCIENCE ENGINEERING

1. Demonstrate basic knowledge of computer applications and apply standard practices in software project development

2. Understand, Analyze and Develop computer programs for efficient design of computer-based systems of varying complexity.

B.E. ELECTRONICS AND COMMUNICATION ENGINEERING

1. An ability to recognize, adapt and to apply the knowledge of electronics and communication to optimize communication systems and to develop techno- economical real world applications.

2. An ability to design and conduct the experiments, analyze and interpret the data using modern software tools with proper understanding of basic concepts of Electronics and Communication Engineering.

B.E. ELECTRICAL AND ELECTRONICS ENGINEERING

1. Capable to acquire knowledge on use of modern engineering tools and equipments to analyze problems necessary for electrical engineering practice

2. Providing engineers with contemporary knowledge about electrical engineering and skills needed to fulfill the needs of society.

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B.TECH. INFORMATION TECHNOLOGY

1. Use and apply current technical concepts and practices in the core Information Technologies of human computer interaction, information management, programming, networking.

2. Effectively integrate IT-based solutions into the user environment

B.E. MECHANICAL ENGINEERING

1. An ability to identify, analyze and solve engineering problems relating to mechanical systems together with allied engineering streams.

2. An ability to build the nation, by imparting technological inputs and managerial skills to become Technocrats and Entrepreneurs, build the attitude of developing new concepts on emerging fields and pursuing advanced education.

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UNDER GRADUATE PROGRAM
REGULATION 2020

COURSE OUTCOMES (COS)
ARTIFICIAL INTELLIGENCE AND DATA SCIENCE (AI-DS)
I SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA101 / ENGINEERING MATHEMATICS-I   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Understand the concepts of symmetric, skew symmetric, orthogonal matrices, properties of Eigen values and eigen vectors, the nature of a quadratic form, sequences and series, power series representation of functions, series representation of exponential, trigonometric logarithmic and hyperbolic functions.(K2)
C101.2 (CO2)	Compute the eigen values, eigen vectors of a matrix, diagonalize the quadratic form using orthogonal transformation and find the inverse and higher powers of a matrix using Cayley Hamilton theorem.(K3)
C101.3 (CO3)	Calculate the limit, derivative, partial derivatives, Jacobians of simple functions and evaluate integrals of single variable using the rules of integration. (K3)
C101.4 (CO4)	Determine the Taylor series representation of functions of one variable and two variables and evaluate maxima and minima of functions of one variable, two variables and several variables. (K3)
C101.5 (CO5)	Evaluate double integrals using change of order technique, double and triple integrals using change of variables technique and calculate surface areas and volume of solids of revolution. (K3)
C101.6 (CO6)	Compute the Fourier series, Sine and Cosine series representation of functions defined in a period and use Fourier series and Parseval's theorem to find the value of infinite series. (K3)

SUB CODE / SUBJECT NAME: 20HSEN101 / TECHNICAL ENGLISH-I   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	Comprehend conversations and talks presented in English(K2)
C102.2 (CO2)	Speak fluently in informal and formal contexts.(K1)
C102.3 (CO3)	Read articles of any kind and be able to comprehend.(K2)
C102.4 (CO4)	Write technical concepts in simple and lucid style.(K2)
C102.5 (CO5)	Prepare informal letters and e-mails efficiently.(K3)
C102.6 (CO6)	Present technical concepts and summaries in correct grammar and vocabulary.(K1)

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SUB CODE / SUBJECT NAME: 20BSPH101 / ENGINEERING PHYSICS   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C103.1 (CO1)	Understand the basics of crystals, structures and crystal growth techniques.(K3)
C103.2 (CO2)	Select a right choice of materials based on their properties for potential applications / acquire fundamental knowledge on elasticity and its applications relevant to the field of engineering.(K3)
C103.3 (CO3)	Apply the advanced physics concepts of quantum theory to characterize the matter.(K4)
C103.4 (CO4)	Understand the basic concepts in laser and its types and fiber optics.(K3)
C103.5 (CO5)	Acquire adequate knowledge on the fundamental concepts of thermal properties of materials applications.(K2)
C103.6 (CO6)	Evaluate the applications of powder diffraction method, optical fibers in sensors, quantum mechanical tunneling and thermal materials in expansion joints and heat exchangers.(K4)

SUB CODE / SUBJECT NAME: 20BSCY101/ ENGINEERING CHEMISTRY   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C104.1 (CO1)	Identify the origin of water resources and develop innovative methods to produce soft water for industrial use and potable water at cheaper cost.(K2)
C104.2 (CO2)	Recognize the basic design of adsorption systems and its industrial applications and the basics concepts of electrochemistry to understand battery technology.(K2)
C104.3 (CO3)	Apply the principles of electrochemistry to corrosion process and the applications of protective coatings to overcome the corrosion.(K3)
C104.4 (CO4)	Disseminating the knowledge about the chemistry of fuels and combustion and its application in various levels.(K2)
C104.5 (CO5)	Acquire the basics of non-conventional sources of energy and understand the principles and the reaction mechanism of batteries and fuel cells.(K3)
C104.6 (CO6)	Illustrate the synthesis and applications of polymers, composites and nano-materials.(K2)

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SUB CODE / SUBJECT NAME: 20ESCS101 / PROBLEM SOLVING AND PROGRAMMING IN C

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C105.1 (CO1)	Develop efficient algorithms for solving a problem.(K2).
C105.2 (CO2)	Use the various constructs in C to develop simple applications.(K3)
C105.3 (CO3)	Design and Implement applications using Array & Strings.(K3)
C105.4 (CO4)	Develop applications using Functions and Pointers.(K6)
C105.5 (CO5)	Design and Develop applications using Structures.(K3)
C105.6 (CO6)	Design and Develop applications using Files.(K4)

SUB CODE / SUBJECT NAME: 20ESGE101 / ENGINEERING GRAPHICS   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	Relate thoughts and ideas graphically in a neat fashion and ability to perform sketching of engineering curves used in engineering practices, multiple views of objects.(K1)
C106.2 (CO2)	Understand the concepts of orthographic projections for basic geometrical constructions.(K2)
C106.3 (CO3)	Acquire the knowledge of orthographic projection in three dimensional object.(K2)
C106.4 (CO4)	Develop knowledge about Sectioning and apply interior shapes of solids.(K3)
C106.5 (CO5)	Analyze the concepts of design in developing various 3 dimensional projections.(K4)
C106.6 (CO6)	Build a strong foundation to analyze the design in various dimensions.(K4)

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SUB CODE / SUBJECT NAME: 20BSPL101/ PHYSICS AND CHEMISTRY LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Apply the principles of thermal physics and properties of matter to evaluate the properties of materials and to determine the physical properties of liquid using ultrasonic interferometer.(K1)
C107.2 (CO2)	Understand measurement technique and usage of new instruments in optics for real time application in engineering.(K2)
C107.3 (CO3)	Apply the knowledge of semiconductor materials to evaluate the band gap and Hall coefficient of materials and to study the characteristics of solar cell for engineering solutions.(K3)
C107.4 (CO4)	Apply the different techniques of quantitative chemical analysis to generate experimental skills in building technical competence.(K2)
C107.5 (CO5)	Apply basic techniques used in chemistry laboratories for water analyses/purification and estimates the ions/metal ions present in domestic/industry wastewater.(K2)
C107.6 (CO6)	Utilize the fundamental laboratory techniques for analyses such as volumetric titrations, conduct metric, potentiometric and spectroscopy.(K2)

SUB CODE / SUBJECT NAME: 20ESPL101 / PROGRAMMING IN C LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C108.1 (CO1)	Solve some simple problems leading to specific applications.(K3)
C108.2 (CO2)	Demonstrate C programming development environment, compiling, debugging, linking and executing a program.(K3)
C108.3 (CO3)	Develop C programs for simple applications making use of basic constructs, arrays and strings. (K4)
C108.4 (CO4)	Develop C programs involving functions and recursion. (K4)
C108.5 (CO5)	Develop C programs involving pointers, and structures.(K6)
C108.6 (CO6)	Design applications using sequential and random access file.(K4)

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SUB CODE / SUBJECT NAME: 20TPHS101 / SKILL ENHANCEMENT   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C109.1 (CO1)	Learn and apply social network ethics.(K3)
C109.2 (CO2)	Understand the browsing culture.(K2)
C109.3 (CO3)	Analyze the networking concepts.(K4)
C109.4 (CO4)	Develop self-professionalism.(K3)
C109.5 (CO5)	Gain hands-on experience in various digital identification procedures.(K2)
C109.6 (CO6)	Analyse and apply the different digital payment gateway methods.(K4)

SUB CODE / SUBJECT NAME: 20HSMG101/ PERSONAL VALUES   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C110.1 (CO1)	Become an individual in knowing the self.(K4)
C110.2 (CO2)	Acquire and express Personal Values, Spiritual values and fitness. (K4)
C110.3 (CO3)	Practice simple physical exercise and breathing techniques.(K2)
C110.4 (CO4)	Practice Yoga asana which will enhance the quality of life.(K1)
C110.5 (CO5)	Practice Meditation and get benefitted.(K1)
C110.6 (CO6)	Understanding moral values and need of physical fitness.(K2)

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II SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA204 /DISCRETE STRUCTURES   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C111.1 (CO1)	Check whether the relation is Binary, Partial Order or equivalence and a function is injective, subjective or bijective, compute inverse and composite of functions.(K3)
C111.2 (CO2)	Solve problems on permutations and combinations using the Counting principle and Pigeon hole Principle.(K3)
C111.3 (CO3)	Construct mathematical arguments and test the validity of statements using the rules of logic, rules of inference, quantiiers, proof strategies and mathematical induction.(K3)
C111.4 (CO4)	Identify a set with the given binary relation as a group, normal group, ring, ields and Boolean algebra.(K3)
C111.5 (CO5)	Identify Graph isomorphism, Eulerian and Hamiltonian walks and sorting in trees.(K3)
C111.6 (CO6)	Explain the properties of functions, relations and graph.(K2)

SUB CODE / SUBJECT NAME: 20HSEN201 /TECHNICAL ENGLISH - II   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	Acquire the ability to speak effectively in real life situations.(K1)
C112.2 (CO2)	Adapt group behaviour and execute the role as a contributing team member.(K1)
C112.3 (CO3)	Employ active and passive vocabulary in oral and written communication.(K2)
C112.4 (CO4)	Share opinions and suggestions effectively in conversations, debates and discussions.(K2)
C112.5 (CO5)	Prepare winning job applications.(K3)
C112.6 (CO6)	Write technical reports convincingly.(K3)

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SUB CODE / SUBJECT NAME: 20BSPH203 /PHYSICS FOR INFORMATION SCIENCE
YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C113.1 (CO1)	Understand the basic concepts of various free electron theory and to determine the electrical properties of solids.(K3)
C113.2 (CO2)	Apply the classical and quantum free electron theory to determine the properties of conductors.(K3)
C113.3 (CO3)	To analyze the properties of semiconductors and its applications (K4)
C113.4 (CO4)	To analyze the mechanisms involved in the magnetic and optical materials using the quantum concepts.(K4)
C113.5 (CO5)	To gain the knowledge on superconducting materials and nanostructures and its applications.(K2)
C113.6 (CO6)	To demonstrate the working principles of micro and nanoelectronic devices.(K3)

SUB CODE / SUBJECT NAME: 20BSCY201 / ENVIRONMENTAL SCIENCE AND ENGINEERING
YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C114.1 (CO1)	Understand the relationship between the environment and human activities to maintain the ecological balance.(K1)
C114.2 (CO2)	Identify societal issues and implement suitable technological solutions to eradicate.(K3)
C114.3 (CO3)	Acquire skills for scientific problem solving related to environmental pollution and Disaster Management.(K3)
C114.4 (CO4)	Disseminate the need for the natural resources and its application to meet the modern requirements.(K2)
C114.5 (CO5)	Aware of environmental issues and Protection Acts to achieve the Sustainable Development Goals.(K2)
C114.6 (CO6)	Recognize the need for population control measures and the environmental based value.education concepts for attaining an ecofriendly environment.(K2)

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SUB CODE / SUBJECT NAME: 20ESIT202 / PYTHON PROGRAMMING   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C115.1 (CO1)	Deine the syntax and semantics of python programming language and Understand control low statements, strings and functions.(K1)
C115.2 (CO2)	Determine the methods to create and manipulate python programs by utilizing the data structures like lists, dictionaries, tuples and sets.(K3)
C115.3 (CO3)	Annotate the concepts of functions, modules and packages in python.(K2)
C115.4 (CO4)	Understand the concepts of iles, exception handling and also apply the object oriented programming concept by creating classes and objects.(K6)
C115.5 (CO5)	Illustrate and use some of the libraries available with python.(K4)
C115.6 (CO6)	Applying the problem solving concepts to various applications using python.(K6)

SUB CODE / SUBJECT NAME: 20CBPC201 / DATA STRUCTURES & ALGORITHMS

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C116.1 (CO1)	Implement abstract data types for linear data structures.(K3)
C116.2 (CO2)	Implement abstract data types for non-linear data structure.(K3)
C116.3 (CO3)	Apply the different linear and non-linear data structures to problem solutions.(K3)
C116.4 (CO4)	Implement the various sorting algorithms.(K3)
C116.5 (CO5)	Implement the various searching algorithms.(K3)
C116.6 (CO6)	Implement iles and graph data structures for various applications.(K3)

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SUB CODE / SUBJECT NAME: 20ESPL201/ PYTHON PROGRAMMING LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C117.1 (CO1)	Implement simple programs for describing the syntax, semantics and control low statements. (K3)
C117.2 (CO2)	Examine the core data structures like String, lists, dictionaries, tuples and sets in Python to store, process and sort the data. (K2)
C117.3 (CO3)	Articulate the concepts of functions, modules and packages in Python. (K2)
C117.4 (CO4)	Illustrate the applications of python libraries. (K3)
C117.5 (CO5)	Create iles and perform read and write operations in it. (K3)
C117.6 (CO6)	Handle exceptions and create classes and objects for any real time applications. (K3)

SUB CODE / SUBJECT NAME: 20CBPL202/ DATA STRUCTURES & ALGORITHMS LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C118.1 (CO1)	Write functions to implement linear and non-linear data structure operations
C118.2 (CO2)	Write programs to implement binary search trees with all operations
C118.3 (CO3)	Write functions to implement graph traversal algorithms
C118.4 (CO4)	Familiarize in sorting algorithm
C118.5 (CO5)	Familiarize in searching algorithm
C118.6 (CO6)	Appropriately use the linear / non-linear data structure operations for a given problem

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SUB CODE / SUBJECT NAME: 20ESGE201/ENGINEERING PRACTICES LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C119.1 (CO1)	Elaborate on the components, gates, soldering practices. Calculate electrical parameters such as voltage, current, resistance and power.(K1)
C119.2 (CO2)	Design and implement Rectifier and Timer circuit. (K2)
C119.3 (CO3)	Measure the electrical energy by single phase and three phase energy meters. (K2)
C119.4 (CO4)	Prepare the carpentry and plumbing joints. (K2)
C119.5 (CO5)	Perform different types of welding joints and sheet metal works.(K2)
C119.6 (CO6)	Perform different machining operations in lathe and drilling.(K2)

SUB CODE / SUBJECT NAME: 20TPHS201 / SKILL ENHANCEMENT   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C120.1 (CO1)	Construct a suitable resume and registration procedure for online mock assessments(K1)
C120.2 (CO2)	Handle various virtual meeting tools.(K3)
C120.3 (CO3)	Acquire exposure about online certification courses.(K4)
C120.4 (CO4)	Get involved and work in a collaborative manner.(K2)
C120.5 (CO5)	Gain knowledge in various presentation methodologies.(K1)
C120.6 (CO6)	Apply knowledge to practice Google suite features and SWOT analysis.(K3)

COURSE CODE	COURSE OUTCOMES
C121.1 (CO1)	Develop a healthy relationship & harmony with others(K1)
C121.2 (CO2)	Practice respecting every human being.(K3)
C121.3 (CO3)	Practice to eradicate negative temperaments.(K3)
C121.4 (CO4)	Acquire Respect, Honesty, Empathy, Forgiveness and Equality.(K4)
C121.5 (CO5)	Manage the cognitive abilities of an Individual.(K5)
C121.6 (CO6)	Understanding the importance of public speaking and teamwork.(K2)

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COMPUTER AND COMMUNICATION ENGINEERING (CCE)

I SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA101 / ENGINEERING MATHEMATICS-I   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Understand the concepts of symmetric, skew symmetric, orthogonal matrices, properties of Eigen values and eigen vectors, the nature of a quadratic form, sequences and series, power series representation of functions, series representation of exponential, trigonometric logarithmic and hyperbolic functions.(K2)
C101.2 (CO2)	Compute the eigen values, eigen vectors of a matrix, diagonalize the quadratic form using orthogonal transformation and find the inverse and higher powers of a matrix using Cayley Hamilton theorem.(K3)
C101.3 (CO3)	Calculate the limit, derivative, partial derivatives, Jacobians of simple functions and evaluate integrals of single variable using the rules of integration. (K3)
C101.4 (CO4)	Determine the Taylor series representation of functions of one variable and two variables and evaluate maxima and minima of functions of one variable, two variables and several variables. (K3)
C101.5 (CO5)	Evaluate double integrals using change of order technique, double and triple integrals using change of variables technique and calculate surface areas and volume of solids of revolution. (K3)
C101.6 (CO6)	Compute the Fourier series, Sine and Cosine series representation of functions defined in a period and use Fourier series and Parseval's theorem to find the value of infinite series. (K3)

SUB CODE / SUBJECT NAME: 20HSEN101 / TECHNICAL ENGLISH-I   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	Comprehend conversations and talks presented in English(K2)
C102.2 (CO2)	Speak fluently in informal and formal contexts.(K1)
C102.3 (CO3)	Read articles of any kind and be able to comprehend.(K2)
C102.4 (CO4)	Write technical concepts in simple and lucid style.(K2)
C102.5 (CO5)	Prepare informal letters and e-mails efficiently.(K3)
C102.6 (CO6)	Present technical concepts and summaries in correct grammar and vocabulary.(K1)

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SUB CODE / SUBJECT NAME: 20BSPH101 / ENGINEERING PHYSICS   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C103.1 (CO1)	Understand the basics of crystals, structures and crystal growth techniques.(K3)
C103.2 (CO2)	Select a right choice of materials based on their properties for potential applications / acquire fundamental knowledge on elasticity and its applications relevant to the field of engineering.(K3)
C103.3 (CO3)	Apply the advanced physics concepts of quantum theory to characterize the matter.(K4)
C103.4 (CO4)	Understand the basic concepts in laser and its types and fiber optics.(K3)
C103.5 (CO5)	Acquire adequate knowledge on the fundamental concepts of thermal properties of materials applications.(K2)
C103.6 (CO6)	Evaluate the applications of powder diffraction method, optical fibers in sensors, quantum mechanical tunneling and thermal materials in expansion joints and heat exchangers.(K4)

SUB CODE / SUBJECT NAME: 20BSCY101/ ENGINEERING CHEMISTRY   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C104.1 (CO1)	Identify the origin of water resources and develop innovative methods to produce soft water for industrial use and potable water at cheaper cost.(K2)
C104.2 (CO2)	Recognize the basic design of adsorption systems and its industrial applications and the basics concepts of electrochemistry to understand battery technology.(K2)
C104.3 (CO3)	Apply the principles of electrochemistry to corrosion process and the applications of protective coatings to overcome the corrosion.(K3)
C104.4 (CO4)	Disseminating the knowledge about the chemistry of fuels and combustion and its application in various levels.(K2)
C104.5 (CO5)	Acquire the basics of non-conventional sources of energy and understand the principles and the reaction mechanism of batteries and fuel cells.(K3)
C104.6 (CO6)	Illustrate the synthesis and applications of polymers, composites and nano-materials.(K2)

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SUB CODE / SUBJECT NAME: 20ESCS101 / PROBLEM SOLVING AND PROGRAMMING IN C

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C105.1 (CO1)	Develop efficient algorithms for solving a problem.(K2).
C105.2 (CO2)	Use the various constructs in C to develop simple applications.(K3)
C105.3 (CO3)	Design and Implement applications using Array & Strings.(K3)
C105.4 (CO4)	Develop applications using Functions and Pointers.(K6)
C105.5 (CO5)	Design and Develop applications using Structures.(K3)
C105.6 (CO6)	Design and Develop applications using Files.(K4)

SUB CODE / SUBJECT NAME: 20ESGE101 / ENGINEERING GRAPHICS   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	Relate thoughts and ideas graphically in a neat fashion and ability to perform sketching of engineering curves used in engineering practices, multiple views of objects.(K1)
C106.2 (CO2)	Understand the concepts of orthographic projections for basic geometrical constructions.(K2)
C106.3 (CO3)	Acquire the knowledge of orthographic projection in three dimensional object.(K2)
C106.4 (CO4)	Develop knowledge about Sectioning and apply interior shapes of solids.(K3)
C106.5 (CO5)	Analyze the concepts of design in developing various 3 dimensional projections.(K4)
C106.6 (CO6)	Build a strong foundation to analyze the design in various dimensions.(K4)

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SUB CODE / SUBJECT NAME: 20BSPL101/ PHYSICS AND CHEMISTRY LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Apply the principles of thermal physics and properties of matter to evaluate the properties of materials and to determine the physical properties of liquid using ultrasonic interferometer.(K1)
C107.2 (CO2)	Understand measurement technique and usage of new instruments in optics for real time application in engineering.(K2)
C107.3 (CO3)	Apply the knowledge of semiconductor materials to evaluate the band gap and Hall coefficient of materials and to study the characteristics of solar cell for engineering solutions.(K3)
C107.4 (CO4)	Apply the different techniques of quantitative chemical analysis to generate experimental skills in building technical competence.(K2)
C107.5 (CO5)	Apply basic techniques used in chemistry laboratories for water analyses/purification and estimates the ions/metal ions present in domestic/industry wastewater.(K2)
C107.6 (CO6)	Utilize the fundamental laboratory techniques for analyses such as volumetric titrations, conduct metric, potentiometric and spectroscopy.(K2)

SUB CODE / SUBJECT NAME: 20ESPL101 / PROGRAMMING IN C LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C108.1 (CO1)	Solve some simple problems leading to specific applications.(K3)
C108.2 (CO2)	Demonstrate C programming development environment, compiling, debugging, linking and executing a program.(K3)
C108.3 (CO3)	Develop C programs for simple applications making use of basic constructs, arrays and strings. (K4)
C108.4 (CO4)	Develop C programs involving functions and recursion. (K4)
C108.5 (CO5)	Develop C programs involving pointers, and structures.(K6)
C108.6 (CO6)	Design applications using sequential and random access file.(K4)

SUB CODE / SUBJECT NAME: 20TPHS101 / SKILL ENHANCEMENT   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C109.1 (CO1)	Learn and apply social network ethics.(K3)
C109.2 (CO2)	Understand the browsing culture.(K2)
C109.3 (CO3)	Analyze the networking concepts.(K4)
C109.4 (CO4)	Develop self-professionalism.(K3)
C109.5 (CO5)	Gain hands-on experience in various digital identification procedures.(K2)
C109.6 (CO6)	Analyse and apply the different digital payment gateway methods.(K4)

SUB CODE / SUBJECT NAME: 20HSMG101/ PERSONAL VALUES   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C110.1 (CO1)	Become an individual in knowing the self.(K4)
C110.2 (CO2)	Acquire and express Personal Values, Spiritual values and fitness. (K4)
C110.3 (CO3)	Practice simple physical exercise and breathing techniques.(K2)
C110.4 (CO4)	Practice Yoga asana which will enhance the quality of life.(K1)
C110.5 (CO5)	Practice Meditation and get benefitted.(K1)
C110.6 (CO6)	Understanding moral values and need of physical fitness.(K2)

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II SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA201/ENGINEERING MATHEMATICS -II   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C111.1 (CO1)	Compute the derivatives of scalar point, vector point functions and evaluate line, surface and volume integrals of vector point functions using Stokes, Greens, and Gauss divergence theorems.(K3)
C111.2 (CO2)	Solve Ordinary differential equations of second and higher order with constant coefficients, variable coefficients and simultaneous linear differential equations.(K3)
C111.3 (CO3)	Construct an analytic function and find the harmonic conjugate, apply the properties of analytic functions to check for harmonic and orthogonal functions and find the images of regions, straight lines and points in the Zplane under the mappings and bilinear transformation.(K3)
C111.4 (CO4)	Find the Taylor's series about a point and Laurent's series in an annular region of analytic functions and Evaluate integrals of analytic functions and real integrals over circular and semicircular contour using Cauchy Goursat theorem, Cauchy integral formula and Cauchy Residue theorem.(K3)
C111.5 (CO5)	Find the Laplace transforms of simple and periodic functions by applying the definition and theorems on Laplace transforms.(K3)
C111.6 (CO6)	Determine the Inverse Laplace transform using the theorems, the method of partial fractions, Convolution and solve linear second order ordinary differential equations with constant coefficients using Laplace transforms.(K3)

SUB CODE / SUBJECT NAME: 20HSEN201 / TECHNICAL ENGLISH - II   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	Acquire the ability to speak effectively in real life situations.(K1)
C112.2 (CO2)	Adapt group behaviour and execute the role as a contributing team member. .(K1)
C112.3 (CO3)	Employ active and passive vocabulary in oral and written communication.(K2)
C112.4 (CO4)	Share opinions and suggestions effectively in conversations, debates and discussions,(K2)
C112.5 (CO5)	Prepare winning job applications.(K3)
C112.6 (CO6)	Write reports and winning job applications. (K3)

COURSE CODE	COURSE OUTCOMES
C113.1 (CO1)	Describe the syntax, semantics and control flow statements of Python programming.(K2)
C113.2 (CO2)	Implement simple programs using control structures in Python.(K3)
C113.3 (CO3)	Explain the methods to create and manipulate strings, lists, dictionaries, tuples and sets.(K2)
C113.4 (CO4)	Articulate the concepts of functions, modules and packages in Python.(K2)
C113.5 (CO5)	Implement simple programs using Python Data types and functions.(K3)
C113.6 (CO6)	Apply the concepts of Exception handling, classes and objects.(K3)

SUB CODE / SUBJECT NAME: 20BSPH201/PHYSICS OF ELECTRONIC DEVICES   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C114.1 (CO1)	Understand the electrical properties of materials.(K1)
C114.2 (CO2)	Analyze the principles of semiconductor physics and its applications.(K2)
C114.3 (CO3)	Explore the properties of magnetic and dielectric materials and their uses.(K2)
C114.4 (CO4)	Understand the theory, construction and operation of the bipolar junction transistors.(K3)
C114.5 (CO5)	Analyse the concept of field effect transistors, power and display devices.(K2)
C114.6 (CO6)	Learn the concepts of Physics towards engineering applications.(K1)

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SUB CODE / SUBJECT NAME: 20BSCY201 / ENVIRONMENTAL SCIENCE AND ENGINEERING

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C114.1 (CO1)	Understand the relationship between the environment and human activities to maintain the ecological balance.(K1)
C114.2 (CO2)	Identify societal issues and implement suitable technological solutions to eradicate.(K3)
C114.3 (CO3)	Acquire skills for scientific problem solving related to environmental pollution and Disaster Management.(K3)
C114.4 (CO4)	Disseminate the need for the natural resources and its application to meet the modern requirements.(K2)
C114.5 (CO5)	Aware of environmental issues and Protection Acts to achieve the Sustainable Development Goals.(K2)
C114.6 (CO6)	Recognize the need for population control measures and the environmental based value.education concepts for attaining an ecofriendly environment.(K2)

SUB CODE / SUBJECT NAME: 20ESGE201/ENGINEERING PRACTICES LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C116.1 (CO1)	Elaborate on the components, gates, soldering practices. Calculate electrical parameters such as voltage, current, resistance and power.
C116.2 (CO2)	Design and implement Rectifier and Timer circuit
C116.3 (CO3)	Measure the electrical energy by single phase and three phase energy meters.
C116.4 (CO4)	Prepare the carpentry and plumbing joints
C116.5 (CO5)	Perform different types of welding joints and sheet metal works
C116.6 (CO6)	Perform different machining operations in lathe and drilling

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SUB CODE / SUBJECT NAME: 20ECPL201 /CIRCUITS AND DEVICES LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C117.1 (CO1)	Analyze the characteristics of basic electronic devices
C117.2 (CO2)	Design RL and RC circuits
C117.3 (CO3)	Verify Thevinin& Norton theorem KVL & KCL, and Super Position Theorems
C117.4 (CO4)	Test the performance of clipper and clamper & FWR.
C117.5 (CO5)	Analyze the characteristics of basic electronic devices such as Diode, BJT, FET and SCR
C117.6 (CO6)	Examine the input-output characteristics of CE and CB amplifiers.

SUB CODE / SUBJECT NAME: 20ECTE201 / PCB DESIGN   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C118.1 (CO1)	Analyze the fabrication processes of printed circuit boards.
C118.2 (CO2)	Perform the chemical processes by using negative/positive masks
C118.3 (CO3)	Perform the mechanical processes by using drilling, etching/routing, milling equipments as well as the developer and etcher machines
C118.4 (CO4)	Operate ORCAD software and design the PCB using ORCAD software.
C118.5 (CO5)	Fabricate and test the PCB for regulated power supply.

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SUB CODE / SUBJECT NAME: 20ECTP301 / SKILL ENHANCEMENT   YEAR /   SEM: I/II

COURSE CODE	COURSE OUTCOMES
C119.1 (CO1)	Construct a suitable resume and registration procedure for online mock assessments
C119.2 (CO2)	Handle various virtual meeting tools
C119.3 (CO3)	Acquire exposure about online certification courses
C119.4 (CO4)	Get involved and work in a collaborative manner.
C119.5 (CO5)	Gain knowledge in various presentation methodologies.
C119.6 (CO6)	Apply knowledge to practice Google suite features and SWOT analysis

SUB CODE / SUBJECT NAME: 20MGMC301 / INTERPERSONAL VALUES   YEAR /   SEM: I/II

COURSE CODE	COURSE OUTCOMES
C120.1 (CO1)	Develop a healthy relationship & harmony with others
C120.2 (CO2)	Practice respecting every human being.
C120.3 (CO3)	Practice to eradicate negative temperaments.
C120.4 (CO4)	Acquire Respect, Honesty, Empathy, Forgiveness and Equality Manage the cognitive abilities of an Individual.
C120.5 (CO5)	Study of Electronic components and equipments – Resistor, colour coding measurement of AC signal parameter, Gates , Circuits etc
C120.6 (CO6)	Understanding the importance of public speaking and teamwork.

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COMPUTER SCIENCE ENGINEERING (CSE)

I SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA101 / ENGINEERING MATHEMATICS-I   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Understand the concepts of symmetric, skew symmetric, orthogonal matrices, properties of Eigen values and eigen vectors, the nature of a quadratic form, sequences and series, power series representation of functions, series representation of exponential, trigonometric logarithmic and hyperbolic functions.(K2)
C101.2 (CO2)	Compute the eigen values, eigen vectors of a matrix, diagonalize the quadratic form using orthogonal transformation and find the inverse and higher powers of a matrix using Cayley Hamilton theorem.(K3)
C101.3 (CO3)	Calculate the limit, derivative, partial derivatives, Jacobians of simple functions and evaluate integrals of single variable using the rules of integration. (K3)
C101.4 (CO4)	Determine the Taylor series representation of functions of one variable and two variables and evaluate maxima and minima of functions of one variable, two variables and several variables. (K3)
C101.5 (CO5)	Evaluate double integrals using change of order technique, double and triple integrals using change of variables technique and calculate surface areas and volume of solids of revolution. (K3)
C101.6 (CO6)	Compute the Fourier series, Sine and Cosine series representation of functions defined in a period and use Fourier series and Parseval's theorem to find the value of infinite series. (K3)

SUB CODE / SUBJECT NAME: 20HSEN101 / TECHNICAL ENGLISH-I   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	Comprehend conversations and talks presented in English(K2)
C102.2 (CO2)	Speak fluently in informal and formal contexts.(K1)
C102.3 (CO3)	Read articles of any kind and be able to comprehend.(K2)
C102.4 (CO4)	Write technical concepts in simple and lucid style.(K2)
C102.5 (CO5)	Prepare informal letters and e-mails efficiently.(K3)
C102.6 (CO6)	Present technical concepts and summaries in correct grammar and vocabulary.(K1)

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SUB CODE / SUBJECT NAME: 20BSPH101 / ENGINEERING PHYSICS   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C103.1 (CO1)	Understand the basics of crystals, structures and crystal growth techniques.(K3)
C103.2 (CO2)	Select a right choice of materials based on their properties for potential applications / acquire fundamental knowledge on elasticity and its applications relevant to the field of engineering.(K3)
C103.3 (CO3)	Apply the advanced physics concepts of quantum theory to characterize the matter.(K4)
C103.4 (CO4)	Understand the basic concepts in laser and its types and fiber optics.(K3)
C103.5 (CO5)	Acquire adequate knowledge on the fundamental concepts of thermal properties of materials applications.(K2)
C103.6 (CO6)	Evaluate the applications of powder diffraction method, optical fibers in sensors, quantum mechanical tunneling and thermal materials in expansion joints and heat exchangers.(K4)

SUB CODE / SUBJECT NAME: 20BSCY101/ ENGINEERING CHEMISTRY   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C104.1 (CO1)	Identify the origin of water resources and develop innovative methods to produce soft water for industrial use and potable water at cheaper cost.(K2)
C104.2 (CO2)	Recognize the basic design of adsorption systems and its industrial applications and the basics concepts of electrochemistry to understand battery technology.(K2)
C104.3 (CO3)	Apply the principles of electrochemistry to corrosion process and the applications of protective coatings to overcome the corrosion.(K3)
C104.4 (CO4)	Disseminating the knowledge about the chemistry of fuels and combustion and its application in various levels.(K2)
C104.5 (CO5)	Acquire the basics of non-conventional sources of energy and understand the principles and the reaction mechanism of batteries and fuel cells.(K3)
C104.6 (CO6)	Illustrate the synthesis and applications of polymers, composites and nano-materials.(K2)

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SUB CODE / SUBJECT NAME: 20ESCS101 / PROBLEM SOLVING AND PROGRAMMING IN C

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C105.1 (CO1)	Develop efficient algorithms for solving a problem.(K2).
C105.2 (CO2)	Use the various constructs in C to develop simple applications.(K3)
C105.3 (CO3)	Design and Implement applications using Array & Strings.(K3)
C105.4 (CO4)	Develop applications using Functions and Pointers.(K6)
C105.5 (CO5)	Design and Develop applications using Structures.(K3)
C105.6 (CO6)	Design and Develop applications using Files.(K4)

SUB CODE / SUBJECT NAME: 20ESGE101 / ENGINEERING GRAPHICS   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	Relate thoughts and ideas graphically in a neat fashion and ability to perform sketching of engineering curves used in engineering practices, multiple views of objects.(K1)
C106.2 (CO2)	Understand the concepts of orthographic projections for basic geometrical constructions.(K2)
C106.3 (CO3)	Acquire the knowledge of orthographic projection in three dimensional object.(K2)
C106.4 (CO4)	Develop knowledge about Sectioning and apply interior shapes of solids.(K3)
C106.5 (CO5)	Analyze the concepts of design in developing various 3 dimensional projections.(K4)
C106.6 (CO6)	Build a strong foundation to analyze the design in various dimensions.(K4)

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SUB CODE / SUBJECT NAME: 20BSPL101/ PHYSICS AND CHEMISTRY LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Apply the principles of thermal physics and properties of matter to evaluate the properties of materials and to determine the physical properties of liquid using ultrasonic interferometer.(K1)
C107.2 (CO2)	Understand measurement technique and usage of new instruments in optics for real time application in engineering.(K2)
C107.3 (CO3)	Apply the knowledge of semiconductor materials to evaluate the band gap and Hall coefficient of materials and to study the characteristics of solar cell for engineering solutions.(K3)
C107.4 (CO4)	Apply the different techniques of quantitative chemical analysis to generate experimental skills in building technical competence.(K2)
C107.5 (CO5)	Apply basic techniques used in chemistry laboratories for water analyses/purification and estimates the ions/metal ions present in domestic/industry wastewater.(K2)
C107.6 (CO6)	Utilize the fundamental laboratory techniques for analyses such as volumetric titrations, conduct metric, potentiometric and spectroscopy.(K2)

SUB CODE / SUBJECT NAME: 20ESPL101 / PROGRAMMING IN C LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C108.1 (CO1)	Solve some simple problems leading to specific applications.(K3)
C108.2 (CO2)	Demonstrate C programming development environment, compiling, debugging, linking and executing a program.(K3)
C108.3 (CO3)	Develop C programs for simple applications making use of basic constructs, arrays and strings. (K4)
C108.4 (CO4)	Develop C programs involving functions and recursion. (K4)
C108.5 (CO5)	Develop C programs involving pointers, and structures.(K6)
C108.6 (CO6)	Design applications using sequential and random access file.(K4)

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SUB CODE / SUBJECT NAME: 20TPHS101 / SKILL ENHANCEMENT   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C109.1 (CO1)	Learn and apply social network ethics.(K3)
C109.2 (CO2)	Understand the browsing culture.(K2)
C109.3 (CO3)	Analyze the networking concepts.(K4)
C109.4 (CO4)	Develop self-professionalism.(K3)
C109.5 (CO5)	Gain hands-on experience in various digital identification procedures.(K2)
C109.6 (CO6)	Analyse and apply the different digital payment gateway methods.(K4)

SUB CODE / SUBJECT NAME: 20HSMG101/ PERSONAL VALUES   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C110.1 (CO1)	Become an individual in knowing the self.(K4)
C110.2 (CO2)	Acquire and express Personal Values, Spiritual values and fitness. (K4)
C110.3 (CO3)	Practice simple physical exercise and breathing techniques.(K2)
C110.4 (CO4)	Practice Yoga asana which will enhance the quality of life.(K1)
C110.5 (CO5)	Practice Meditation and get benefitted.(K1)
C110.6 (CO6)	Understanding moral values and need of physical fitness.(K2)

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II SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA204 / DISCRETE STRUCTURES   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C111.1 (CO1)	Check whether the relation is Binary, Partial Order or equivalence and a function is injective, subjective or bijective, compute inverse and composite of functions (K3)
C111.2 (CO2)	Solve problems on permutations and combinations using the Counting principle and Pigeon hole Principle (K3)
C111.3 (CO3)	Construct mathematical arguments and test the validity of statements using the rules of logic, rules of inference, quantiiers, proof strategies and mathematical induction. (K3)
C111.4 (CO4)	Identify a set with the given binary relation as a group, normal group, ring, ields and Boolean algebra. (K3)
C111.5 (CO5)	Identify Graph isomorphism, Eulerian and Hamiltonian walks and sorting in trees (K3)
C111.6 (CO6)	Explain the properties of functions, relations and graph (K2)

SUB CODE / SUBJECT NAME: 20HSEN201 / TECHNICAL ENGLISH - II   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	Acquire the ability to speak effectively in real life situations (K1)
C112.2 (CO2)	Adapt group behaviour and execute the role as a contributing team member (K1)
C112.3 (CO3)	Employ active and passive vocabulary in oral and written communication (K2)
C112.4 (CO4)	Share opinions and suggestions effectively in conversations, debates and discussions (K2)
C112.5 (CO5)	Prepare winning job applications (K3)
C112.6 (CO6)	Write technical reports convincingly (K3)

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SUB CODE / SUBJECT NAME: 20BSPH203/ PHYSICS FOR INFORMATION SCIENCE

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C113.1 (CO1)	Understand the basic concepts of various free electron theory and to determine the electrical properties of solids. (K3)
C113.2 (CO2)	Apply the classical and quantum free electron theory to determine the properties of conductors (K3)
C113.3 (CO3)	To analyze the properties of semiconductors and its applications (K4)
C113.4 (CO4)	To analyze the mechanisms involved in the magnetic and optical materials using the quantum concepts (K4)
C113.5 (CO5)	To gain the knowledge on superconducting materials and nanostructures and its applications. (K2)
C113.6 (CO6)	To demonstrate the working principles of micro and nanoelectronic devices. (K3)

SUB CODE / SUBJECT NAME: 20BSCY201/ ENVIRONMENTAL SCIENCE AND ENGINEERING

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C114.1 (CO1)	Understand the relationship between the environment and human activities to maintain the ecological balance. (K1)
C114.2 (CO2)	Identify societal issues and implement suitable technological solutions to eradicate. (K3)
C114.3 (CO3)	Acquire skills for scientific problem solving related to environmental pollution and Disaster Management. (K3)
C114.4 (CO4)	Disseminate the need for the natural resources and its application to meet the modern requirements. (K2)
C114.5 (CO5)	Aware of environmental issues and Protection Acts to achieve the Sustainable Development Goals. (K2)
C114.6 (CO6)	Recognize the need for population control measures and the environmental based value.education concepts for attaining an ecofriendly environment. (K2)

SUB CODE / SUBJECT NAME: 20ESIT202 / PYTHON PROGRAMMING   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C115.1 (CO1)	Define the syntax and semantics of python programming language and Understand control low statements, strings and functions. (K1)
C115.2 (CO2)	Determine the methods to create and manipulate python programs by utilizing the data structures like lists, dictionaries, tuples and sets. (K3)
C115.3 (CO3)	Annotate the concepts of functions, modules and packages in python. (K2)
C115.4 (CO4)	Understand the concepts of iles, exception handling and also apply the object oriented programming concept by creating classes and objects. (K6)
C115.5 (CO5)	Illustrate and use some of the libraries available with python.(K4)
C115.6 (CO6)	Applying the problem solving concepts to various applications using python.(K6)

SUB CODE / SUBJECT NAME: 20ESIT203 / DIGITAL PRINCIPLES AND SYSTEM DESIGN

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C116.1 (CO1)	Understanding Boolean algebra, number systems and simplify Boolean functions using Kmap. (K2)
C116.2 (CO2)	Analyze the Combinational and sequential Circuits. (K2)
C116.3 (CO3)	Design Combinational Circuits and Sequential circuits (K5)
C116.4 (CO4)	Implement designs using Programmable Logic Devices. (K3)
C116.5 (CO5)	Apply HDL code for combinational and Sequential Circuits. (K3)
C116.6 (CO6)	Design and troubleshoot logic circuits. (K4)

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SUB CODE / SUBJECT NAME: 20ESPL201 / PYTHON PROGRAMMING LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C117.1 (CO1)	Implement simple programs for describing the syntax, semantics and control low statements. (K3)
C117.2 (CO2)	Examine the core data structures like String, lists, dictionaries, tuples and sets in Python to store, process and sort the data. (K2)
C117.3 (CO3)	Articulate the concepts of functions, modules and packages in Python. (K2)
C117.4 (CO4)	Illustrate the applications of python libraries. (K3)
C117.5 (CO5)	Create iles and perform read and write operations in it. (K3)
C117.6 (CO6)	Handle exceptions and create classes and objects for any real time applications. (K3)

SUB CODE / SUBJECT NAME: 20ESPL202/ DIGITAL LABORATORY   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C118.1 (CO1)	Implement simpliied combinational circuits using basic logic gates. (K6)
C118.2 (CO2)	Implement combinational circuits using MSI devices. (K6)
C118.3 (CO3)	Implement sequential circuits like registers and counters.(K6)
C118.4 (CO4)	Simulate combinational and sequential circuits using HDL.(K4)
C118.5 (CO5)	Implement designs using Programmable Logic Devices. (K6)
C118.6 (CO6)	Design and implementation of a simple digital system.(K6)

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SUB CODE / SUBJECT NAME: 20ESGE201/ENGINEERING PRACTICES LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C119.1 (CO1)	Elaborate on the components, gates, soldering practices. Calculate electrical parameters such as voltage, current, resistance and power.(K1)
C119.2 (CO2)	Design and implement Rectifier and Timer circuit. (K2)
C119.3 (CO3)	Measure the electrical energy by single phase and three phase energy meters. (K2)
C119.4 (CO4)	Prepare the carpentry and plumbing joints. (K2)
C119.5 (CO5)	Perform different types of welding joints and sheet metal works.(K2)
C119.6 (CO6)	Perform different machining operations in lathe and drilling.(K2)

SUB CODE / SUBJECT NAME: 20TPHS201 / SKILL ENHANCEMENT   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C120.1 (CO1)	Construct a suitable resume and registration procedure for online mock assessments(K1)
C120.2 (CO2)	Handle various virtual meeting tools.(K3)
C120.3 (CO3)	Acquire exposure about online certification courses.(K4)
C120.4 (CO4)	Get involved and work in a collaborative manner.(K2)
C120.5 (CO5)	Gain knowledge in various presentation methodologies.(K1)
C120.6 (CO6)	Apply knowledge to practice Google suite features and SWOT analysis.(K3)

COURSE CODE	COURSE OUTCOMES
C121.1 (CO1)	Develop a healthy relationship & harmony with others(K1)
C121.2 (CO2)	Practice respecting every human being.(K3)
C121.3 (CO3)	Practice to eradicate negative temperaments.(K3)
C121.4 (CO4)	Acquire Respect, Honesty, Empathy, Forgiveness and Equality.(K4)
C121.5 (CO5)	Manage the cognitive abilities of an Individual.(K5)
C121.6 (CO6)	Understanding the importance of public speaking and teamwork.(K2)

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ELECTONICS AND COMMUNICATION ENGINEERING

I SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA101 / ENGINEERING MATHEMATICS-I   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Understand the concepts of symmetric, skew symmetric, orthogonal matrices, properties of Eigen values and eigen vectors, the nature of a quadratic form, sequences and series, power series representation of functions, series representation of exponential, trigonometric logarithmic and hyperbolic functions.(K2)
C101.2 (CO2)	Compute the eigen values, eigen vectors of a matrix, diagonalize the quadratic form using orthogonal transformation and find the inverse and higher powers of a matrix using Cayley Hamilton theorem.(K3)
C101.3 (CO3)	Calculate the limit, derivative, partial derivatives, Jacobians of simple functions and evaluate integrals of single variable using the rules of integration. (K3)
C101.4 (CO4)	Determine the Taylor series representation of functions of one variable and two variables and evaluate maxima and minima of functions of one variable, two variables and several variables. (K3)
C101.5 (CO5)	Evaluate double integrals using change of order technique, double and triple integrals using change of variables technique and calculate surface areas and volume of solids of revolution. (K3)
C101.6 (CO6)	Compute the Fourier series, Sine and Cosine series representation of functions defined in a period and use Fourier series and Parseval's theorem to find the value of infinite series. (K3)

SUB CODE / SUBJECT NAME: 20HSEN101 / TECHNICAL ENGLISH-I   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	Comprehend conversations and talks presented in English(K2)
C102.2 (CO2)	Speak fluently in informal and formal contexts.(K1)
C102.3 (CO3)	Read articles of any kind and be able to comprehend.(K2)
C102.4 (CO4)	Write technical concepts in simple and lucid style.(K2)
C102.5 (CO5)	Prepare informal letters and e-mails efficiently.(K3)
C102.6 (CO6)	Present technical concepts and summaries in correct grammar and vocabulary.(K1)

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SUB CODE / SUBJECT NAME: 20BSPH101 / ENGINEERING PHYSICS   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C103.1 (CO1)	Understand the basics of crystals, structures and crystal growth techniques.(K3)
C103.2 (CO2)	Select a right choice of materials based on their properties for potential applications / acquire fundamental knowledge on elasticity and its applications relevant to the field of engineering.(K3)
C103.3 (CO3)	Apply the advanced physics concepts of quantum theory to characterize the matter.(K4)
C103.4 (CO4)	Understand the basic concepts in laser and its types and fiber optics.(K3)
C103.5 (CO5)	Acquire adequate knowledge on the fundamental concepts of thermal properties of materials applications.(K2)
C103.6 (CO6)	Evaluate the applications of powder diffraction method, optical fibers in sensors, quantum mechanical tunneling and thermal materials in expansion joints and heat exchangers.(K4)

SUB CODE / SUBJECT NAME: 20BSCY101/ ENGINEERING CHEMISTRY   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C104.1 (CO1)	Identify the origin of water resources and develop innovative methods to produce soft water for industrial use and potable water at cheaper cost.(K2)
C104.2 (CO2)	Recognize the basic design of adsorption systems and its industrial applications and the basics concepts of electrochemistry to understand battery technology.(K2)
C104.3 (CO3)	Apply the principles of electrochemistry to corrosion process and the applications of protective coatings to overcome the corrosion.(K3)
C104.4 (CO4)	Disseminating the knowledge about the chemistry of fuels and combustion and its application in various levels.(K2)
C104.5 (CO5)	Acquire the basics of non-conventional sources of energy and understand the principles and the reaction mechanism of batteries and fuel cells.(K3)
C104.6 (CO6)	Illustrate the synthesis and applications of polymers, composites and nano-materials.(K2)

COURSE CODE	COURSE OUTCOMES
C105.1 (CO1)	Develop efficient algorithms for solving a problem.(K2).
C105.2 (CO2)	Use the various constructs in C to develop simple applications.(K3)
C105.3 (CO3)	Design and Implement applications using Array & Strings.(K3)
C105.4 (CO4)	Develop applications using Functions and Pointers.(K6)
C105.5 (CO5)	Design and Develop applications using Structures.(K3)
C105.6 (CO6)	Design and Develop applications using Files.(K4)

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	Relate thoughts and ideas graphically in a neat fashion and ability to perform sketching of engineering curves used in engineering practices, multiple views of objects.(K1)
C106.2 (CO2)	Understand the concepts of orthographic projections for basic geometrical constructions.(K2)
C106.3 (CO3)	Acquire the knowledge of orthographic projection in three dimensional object.(K2)
C106.4 (CO4)	Develop knowledge about Sectioning and apply interior shapes of solids.(K3)
C106.5 (CO5)	Analyze the concepts of design in developing various 3 dimensional projections.(K4)
C106.6 (CO6)	Build a strong foundation to analyze the design in various dimensions.(K4)

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SUB CODE / SUBJECT NAME: 20BSPL101/ PHYSICS AND CHEMISTRY LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Apply the principles of thermal physics and properties of matter to evaluate the properties of materials and to determine the physical properties of liquid using ultrasonic interferometer.(K1)
C107.2 (CO2)	Understand measurement technique and usage of new instruments in optics for real time application in engineering.(K2)
C107.3 (CO3)	Apply the knowledge of semiconductor materials to evaluate the band gap and Hall coefficient of materials and to study the characteristics of solar cell for engineering solutions.(K3)
C107.4 (CO4)	Apply the different techniques of quantitative chemical analysis to generate experimental skills in building technical competence.(K2)
C107.5 (CO5)	Apply basic techniques used in chemistry laboratories for water analyses/purification and estimates the ions/metal ions present in domestic/industry wastewater.(K2)
C107.6 (CO6)	Utilize the fundamental laboratory techniques for analyses such as volumetric titrations, conduct metric, potentiometric and spectroscopy.(K2)

SUB CODE / SUBJECT NAME: 20ESPL101 / PROGRAMMING IN C LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C108.1 (CO1)	Solve some simple problems leading to specific applications.(K3)
C108.2 (CO2)	Demonstrate C programming development environment, compiling, debugging, linking and executing a program.(K3)
C108.3 (CO3)	Develop C programs for simple applications making use of basic constructs, arrays and strings. (K4)
C108.4 (CO4)	Develop C programs involving functions and recursion. (K4)
C108.5 (CO5)	Develop C programs involving pointers, and structures.(K6)
C108.6 (CO6)	Design applications using sequential and random access file.(K4)

COURSE CODE	COURSE OUTCOMES
C109.1 (CO1)	Learn and apply social network ethics.(K3)
C109.2 (CO2)	Understand the browsing culture.(K2)
C109.3 (CO3)	Analyze the networking concepts.(K4)
C109.4 (CO4)	Develop self-professionalism.(K3)
C109.5 (CO5)	Gain hands-on experience in various digital identification procedures.(K2)
C109.6 (CO6)	Analyse and apply the different digital payment gateway methods.(K4)

COURSE CODE	COURSE OUTCOMES
C110.1 (CO1)	Become an individual in knowing the self.(K4)
C110.2 (CO2)	Acquire and express Personal Values, Spiritual values and fitness. (K4)
C110.3 (CO3)	Practice simple physical exercise and breathing techniques.(K2)
C110.4 (CO4)	Practice Yoga asana which will enhance the quality of life.(K1)
C110.5 (CO5)	Practice Meditation and get benefitted.(K1)
C110.6 (CO6)	Understanding moral values and need of physical fitness.(K2)

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II SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA201/ENGINEERING MATHEMATICS -II   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C111.1 (CO1)	Compute the derivatives of scalar point, vector point functions and evaluate line, surface and volume integrals of vector point functions using Stokes, Greens, and Gauss divergence theorems.(K3)
C111.2 (CO2)	Solve Ordinary differential equations of second and higher order with constant coefficients, variable coefficients and simultaneous linear differential equations.(K3)
C111.3 (CO3)	Construct an analytic function and find the harmonic conjugate, apply the properties of analytic functions to check for harmonic and orthogonal functions and find the images of regions, straight lines and points in the Zplane under the mappings and bilinear transformation.(K3)
C111.4 (CO4)	Find the Taylor's series about a point and Laurent's series in an annular region of analytic functions and Evaluate integrals of analytic functions and real integrals over circular and semicircular contour using Cauchy Goursat theorem, Cauchy integral formula and Cauchy Residue theorem.(K3)
C111.5 (CO5)	Find the Laplace transforms of simple and periodic functions by applying the definition and theorems on Laplace transforms.(K3)
C111.6 (CO6)	Determine the Inverse Laplace transform using the theorems, the method of partial fractions, Convolution and solve linear second order ordinary differential equations with constant coefficients using Laplace transforms.(K3)

SUB CODE / SUBJECT NAME: 20HSEN201 / TECHNICAL ENGLISH - II   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	Acquire the ability to speak effectively in real life situations.(K1)
C112.2 (CO2)	Adapt group behaviour and execute the role as a contributing team member. .(K1)
C112.3 (CO3)	Employ active and passive vocabulary in oral and written communication.(K2)
C112.4 (CO4)	Share opinions and suggestions effectively in conversations, debates and discussions,(K2)
C112.5 (CO5)	Prepare winning job applications.(K3)
C112.6 (CO6)	Write reports and winning job applications. (K3)

COURSE CODE	COURSE OUTCOMES
C113.1 (CO1)	Describe the syntax, semantics and control flow statements of Python programming.(K2)
C113.2 (CO2)	Implement simple programs using control structures in Python.(K3)
C113.3 (CO3)	Explain the methods to create and manipulate strings, lists, dictionaries, tuples and sets.(K2)
C113.4 (CO4)	Articulate the concepts of functions, modules and packages in Python.(K2)
C113.5 (CO5)	Implement simple programs using Python Data types and functions.(K3)
C113.6 (CO6)	Apply the concepts of Exception handling, classes and objects.(K3)

SUB CODE / SUBJECT NAME: 20BSPH201/PHYSICS OF ELECTRONIC DEVICES   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C114.1 (CO1)	Understand the electrical properties of materials.(K1)
C114.2 (CO2)	Analyze the principles of semiconductor physics and its applications.(K2)
C114.3 (CO3)	Explore the properties of magnetic and dielectric materials and their uses.(K2)
C114.4 (CO4)	Understand the theory, construction and operation of the bipolar junction transistors.(K3)
C114.5 (CO5)	Analyse the concept of field effect transistors, power and display devices.(K2)
C114.6 (CO6)	Learn the concepts of Physics towards engineering applications.(K1)

COURSE CODE	COURSE OUTCOMES
C115.1 (CO1)	Define the basic laws and apply the methods for analyzing electrical circuits.(K3)
C115.2 (CO2)	Recall the basic concepts of graph theory and analyze the electric circuits using graph theory(K4)
C115.3 (CO3)	Analyze dc and ac electric circuits using theorems.(K4)
C115.4 (CO4)	Test and evaluate circuits based on the knowledge gained to explain the behavior of the circuit at series and parallel resonance and the effect of resonance.(K4)
C115.5 (CO5)	Describe the response of RL, RC and RLC circuits for standard test signals like step and sinusoidal signals.(K2)
C115.6 (CO6)	Implement two port equivalents for electric circuits.(K3)

SUB CODE / SUBJECT NAME: 20ESGE201/ENGINEERING PRACTICES LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C116.1 (CO1)	Elaborate on the components, gates, soldering practices. Calculate electrical parameters such as voltage, current, resistance and power.(K1)
C116.2 (CO2)	Design and implement Rectifier and Timer circuit.(K2)
C116.3 (CO3)	Measure the electrical energy by single phase and three phase energy meters.(K2)
C116.4 (CO4)	Prepare the carpentry and plumbing joints.(K2)
C116.5 (CO5)	Perform different types of welding joints and sheet metal works.(K2)
C116.6 (CO6)	Perform different machining operations in lathe and drilling.(K2)

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SUB CODE / SUBJECT NAME: 20ECPL201 /CIRCUITS AND DEVICES LABORATORY

YEAR /   SEM: I/II

COURSE CODE	COURSE OUTCOMES
C117.1 (CO1)	Analyze the characteristics of basic electronic devices.(K4)
C117.2 (CO2)	Design RL and RC circuits.(K5)
C117.3 (CO3)	Verify Thevinin& Norton theorem KVL & KCL, and Super Position Theorems.(K6)
C117.4 (CO4)	Test the performance of clipper and clamper & FWR.(K6)
C117.5 (CO5)	Analyze the characteristics of basic electronic devices such as Diode, BJT, FET and SCR.(K4)
C117.6 (CO6)	Examine the input-output characteristics of CE and CB amplifiers.(K3)

SUB CODE / SUBJECT NAME: 20ECTE201 / PCB DESIGN   **YEAR /   SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C118.1 (CO1)	Analyze the fabrication processes of printed circuit boards.
C118.2 (CO2)	Perform the chemical processes by using negative/positive masks
C118.3 (CO3)	Perform the mechanical processes by using drilling, etching/routing, milling equipments as well as the developer and etcher machines
C118.4 (CO4)	Operate ORCAD software and design the PCB using ORCAD software.
C118.5 (CO5)	Fabricate and test the PCB for regulated power supply.

SUB CODE / SUBJECT NAME: 20ECTP301 / SKILL ENHANCEMENT   YEAR /   SEM: I/II

COURSE CODE	COURSE OUTCOMES
C119.1 (CO1)	Construct a suitable resume and registration procedure for online mock assessments.(K1)
C119.2 (CO2)	Handle various virtual meeting tools.(K3)
C119.3 (CO3)	Acquire exposure about online certification courses.(K4)
C119.4 (CO4)	Get involved and work in a collaborative manner.(K2)
C119.5 (CO5)	Gain knowledge in various presentation methodologies.(K1)
C119.6 (CO6)	Apply knowledge to practice Google suite features and SWOT analysis.(K3)

SUB CODE / SUBJECT NAME: 20MGMC301 / INTERPERSONAL VALUES   YEAR /   SEM: I/II

COURSE CODE	COURSE OUTCOMES
C120.1 (CO1)	Develop a healthy relationship & harmony with others.(K1)
C120.2 (CO2)	Practice respecting every human being.(K3)
C120.3 (CO3)	Practice to eradicate negative temperaments.(K3)
C120.4 (CO4)	Acquire Respect, Honesty, Empathy, Forgiveness and Equality Manage the cognitive abilities of an Individual.(K4)
C120.5 (CO5)	Study of Electronic components and equipments – Resistor, colour coding measurement of AC signal parameter, Gates , Circuits etc.(K5)
C120.6 (CO6)	Understanding the importance of public speaking and teamwork.(K2)

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ELECTRICAL AND ELECTRONICS ENGINEERING

I SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA101 / ENGINEERING MATHEMATICS-I   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Understand the concepts of symmetric, skew symmetric, orthogonal matrices, properties of Eigen values and eigen vectors, the nature of a quadratic form, sequences and series, power series representation of functions, series representation of exponential, trigonometric logarithmic and hyperbolic functions.(K2)
C101.2 (CO2)	Compute the eigen values, eigen vectors of a matrix, diagonalize the quadratic form using orthogonal transformation and find the inverse and higher powers of a matrix using Cayley Hamilton theorem.(K3)
C101.3 (CO3)	Calculate the limit, derivative, partial derivatives, Jacobians of simple functions and evaluate integrals of single variable using the rules of integration. (K3)
C101.4 (CO4)	Determine the Taylor series representation of functions of one variable and two variables and evaluate maxima and minima of functions of one variable, two variables and several variables. (K3)
C101.5 (CO5)	Evaluate double integrals using change of order technique, double and triple integrals using change of variables technique and calculate surface areas and volume of solids of revolution. (K3)
C101.6 (CO6)	Compute the Fourier series, Sine and Cosine series representation of functions defined in a period and use Fourier series and Parseval's theorem to find the value of infinite series. (K3)

SUB CODE / SUBJECT NAME: 20HSEN101 / TECHNICAL ENGLISH-I   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	Comprehend conversations and talks presented in English(K2)
C102.2 (CO2)	Speak fluently in informal and formal contexts.(K1)
C102.3 (CO3)	Read articles of any kind and be able to comprehend.(K2)
C102.4 (CO4)	Write technical concepts in simple and lucid style.(K2)
C102.5 (CO5)	Prepare informal letters and e-mails efficiently.(K3)
C102.6 (CO6)	Present technical concepts and summaries in correct grammar and vocabulary.(K1)

SUB CODE / SUBJECT NAME: 20BSPH101 / ENGINEERING PHYSICS   YEAR / SEM: I/I

SUB CODE / SUBJECT NAME: 20BSPH101 / ENGINEERING PHYSICS   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C103.1 (CO1)	Understand the basics of crystals, structures and crystal growth techniques.(K3)
C103.2 (CO2)	Select a right choice of materials based on their properties for potential applications / acquire fundamental knowledge on elasticity and its applications relevant to the field of engineering.(K3)
C103.3 (CO3)	Apply the advanced physics concepts of quantum theory to characterize the matter.(K4)
C103.4 (CO4)	Understand the basic concepts in laser and its types and fiber optics.(K3)
C103.5 (CO5)	Acquire adequate knowledge on the fundamental concepts of thermal properties of materials applications.(K2)
C103.6 (CO6)	Evaluate the applications of powder diffraction method, optical fibers in sensors, quantum mechanical tunneling and thermal materials in expansion joints and heat exchangers.(K4)

SUB CODE / SUBJECT NAME: 20BSCY101/ ENGINEERING CHEMISTRY   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C104.1 (CO1)	Identify the origin of water resources and develop innovative methods to produce soft water for industrial use and potable water at cheaper cost.(K2)
C104.2 (CO2)	Recognize the basic design of adsorption systems and its industrial applications and the basics concepts of electrochemistry to understand battery technology.(K2)
C104.3 (CO3)	Apply the principles of electrochemistry to corrosion process and the applications of protective coatings to overcome the corrosion.(K3)
C104.4 (CO4)	Disseminating the knowledge about the chemistry of fuels and combustion and its application in various levels.(K2)
C104.5 (CO5)	Acquire the basics of non-conventional sources of energy and understand the principles and the reaction mechanism of batteries and fuel cells.(K3)
C104.6 (CO6)	Illustrate the synthesis and applications of polymers, composites and nano-materials.(K2)

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SUB CODE / SUBJECT NAME: 20ESCS101 / PROBLEM SOLVING AND PROGRAMMING IN C

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C105.1 (CO1)	Develop efficient algorithms for solving a problem.(K2).
C105.2 (CO2)	Use the various constructs in C to develop simple applications.(K3)
C105.3 (CO3)	Design and Implement applications using Array & Strings.(K3)
C105.4 (CO4)	Develop applications using Functions and Pointers.(K6)
C105.5 (CO5)	Design and Develop applications using Structures.(K3)
C105.6 (CO6)	Design and Develop applications using Files.(K4)

SUB CODE / SUBJECT NAME: 20ESGE101 / ENGINEERING GRAPHICS   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	Relate thoughts and ideas graphically in a neat fashion and ability to perform sketching of engineering curves used in engineering practices, multiple views of objects.(K1)
C106.2 (CO2)	Understand the concepts of orthographic projections for basic geometrical constructions.(K2)
C106.3 (CO3)	Acquire the knowledge of orthographic projection in three dimensional object.(K2)
C106.4 (CO4)	Develop knowledge about Sectioning and apply interior shapes of solids.(K3)
C106.5 (CO5)	Analyze the concepts of design in developing various 3 dimensional projections.(K4)
C106.6 (CO6)	Build a strong foundation to analyze the design in various dimensions.(K4)

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SUB CODE / SUBJECT NAME: 20BSPL101/ PHYSICS AND CHEMISTRY LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Apply the principles of thermal physics and properties of matter to evaluate the properties of materials and to determine the physical properties of liquid using ultrasonic interferometer.(K1)
C107.2 (CO2)	Understand measurement technique and usage of new instruments in optics for real time application in engineering.(K2)
C107.3 (CO3)	Apply the knowledge of semiconductor materials to evaluate the band gap and Hall coefficient of materials and to study the characteristics of solar cell for engineering solutions.(K3)
C107.4 (CO4)	Apply the different techniques of quantitative chemical analysis to generate experimental skills in building technical competence.(K2)
C107.5 (CO5)	Apply basic techniques used in chemistry laboratories for water analyses/purification and estimates the ions/metal ions present in domestic/industry wastewater.(K2)
C107.6 (CO6)	Utilize the fundamental laboratory techniques for analyses such as volumetric titrations, conduct metric, potentiometric and spectroscopy.(K2)

SUB CODE / SUBJECT NAME: 20ESPL101 / PROGRAMMING IN C LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C108.1 (CO1)	Solve some simple problems leading to specific applications.(K3)
C108.2 (CO2)	Demonstrate C programming development environment, compiling, debugging, linking and executing a program.(K3)
C108.3 (CO3)	Develop C programs for simple applications making use of basic constructs, arrays and strings. (K4)
C108.4 (CO4)	Develop C programs involving functions and recursion. (K4)
C108.5 (CO5)	Develop C programs involving pointers, and structures.(K6)
C108.6 (CO6)	Design applications using sequential and random access file.(K4)

SUB CODE / SUBJECT NAME: 20TPHS101 / SKILL ENHANCEMENT   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C109.1 (CO1)	Learn and apply social network ethics.(K3)
C109.2 (CO2)	Understand the browsing culture.(K2)
C109.3 (CO3)	Analyze the networking concepts.(K4)
C109.4 (CO4)	Develop self-professionalism.(K3)
C109.5 (CO5)	Gain hands-on experience in various digital identification procedures.(K2)
C109.6 (CO6)	Analyse and apply the different digital payment gateway methods.(K4)

SUB CODE / SUBJECT NAME: 20HSMG101/ PERSONAL VALUES   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C110.1 (CO1)	Become an individual in knowing the self.(K4)
C110.2 (CO2)	Acquire and express Personal Values, Spiritual values and fitness. (K4)
C110.3 (CO3)	Practice simple physical exercise and breathing techniques.(K2)
C110.4 (CO4)	Practice Yoga asana which will enhance the quality of life.(K1)
C110.5 (CO5)	Practice Meditation and get benefitted.(K1)
C110.6 (CO6)	Understanding moral values and need of physical fitness.(K2)

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II SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA201/ENGINEERING MATHEMATICS -II   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C111.1 (CO1)	Compute the derivatives of scalar point, vector point functions and evaluate line, surface and volume integrals of vector point functions using Stokes, Greens, and Gauss divergence theorems.(K3)
C111.2 (CO2)	Solve Ordinary differential equations of second and higher order with constant coefficients, variable coefficients and simultaneous linear differential equations.(K3)
C111.3 (CO3)	Construct an analytic function and find the harmonic conjugate, apply the properties of analytic functions to check for harmonic and orthogonal functions and find the images of regions, straight lines and points in the Zplane under the mappings and bilinear transformation.(K3)
C111.4 (CO4)	Find the Taylor's series about a point and Laurent's series in an annular region of analytic functions and Evaluate integrals of analytic functions and real integrals over circular and semicircular contour using Cauchy Goursat theorem, Cauchy integral formula and Cauchy Residue theorem.(K3)
C111.5 (CO5)	Find the Laplace transforms of simple and periodic functions by applying the definition and theorems on Laplace transforms.(K3)
C111.6 (CO6)	Determine the Inverse Laplace transform using the theorems, the method of partial fractions, Convolution and solve linear second order ordinary differential equations with constant coefficients using Laplace transforms.(K3)

SUB CODE / SUBJECT NAME: 20HSEN201 / TECHNICAL ENGLISH - II   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	Acquire the ability to speak effectively in real life situations.(K1)
C112.2 (CO2)	Adapt group behaviour and execute the role as a contributing team member. .(K1)
C112.3 (CO3)	Employ active and passive vocabulary in oral and written communication.(K2)
C112.4 (CO4)	Share opinions and suggestions effectively in conversations, debates and discussions,(K2)
C112.5 (CO5)	Prepare winning job applications.(K3)
C112.6 (CO6)	Write technical reports convincingly ((K3)

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SUB CODE / SUBJECT NAME: 20ESIT201/ PYTHON PROGRAMMING WITH LAB   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C113.1 (CO1)	Describe the syntax, semantics and control flow statements of Python programming.(K2)
C113.2 (CO2)	Implement simple programs using control structures in Python.(K3)
C113.3 (CO3)	Explain the methods to create and manipulate strings, lists, dictionaries, tuples and sets.(K2)
C113.4 (CO4)	Articulate the concepts of functions, modules and packages in Python.(K2)
C113.5 (CO5)	Implement simple programs using Python Data types and functions.(K3)
C113.6 (CO6)	Apply the concepts of Exception handling, classes and objects.(K3)

SUB CODE / SUBJECT NAME: 20BSPH201/PHYSICS OF ELECTRONIC DEVICES   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C114.1 (CO1)	Understand the electrical properties of materials.(K1)
C114.2 (CO2)	Analyze the principles of semiconductor physics and its applications.(K2)
C114.3 (CO3)	Explore the properties of magnetic and dielectric materials and their uses.(K2)
C114.4 (CO4)	Understand the theory, construction and operation of the bipolar junction transistors.(K3)
C114.5 (CO5)	Analyse the concept of field effect transistors, power and display devices.(K2)
C114.6 (CO6)	Learn the concepts of Physics towards engineering applications.(K1)

COURSE CODE	COURSE OUTCOMES
C115.1 (CO1)	Define the basic laws and apply the methods for analyzing electrical circuits.(K3)
C115.2 (CO2)	Recall the basic concepts of graph theory and analyze the electric circuits using graph theory(K4)
C115.3 (CO3)	Analyze dc and ac electric circuits using theorems.(K4)
C115.4 (CO4)	Test and evaluate circuits based on the knowledge gained to explain the behavior of the circuit at series and parallel resonance and the effect of resonance.(K4)
C115.5 (CO5)	Describe the response of RL, RC and RLC circuits for standard test signals like step and sinusoidal signals.(K2)
C115.6 (CO6)	Implement two port equivalents for electric circuits.(K3)

SUB CODE / SUBJECT NAME: 20BSCY201/ ENVIRONMENTAL SCIENCE AND ENGINEERING

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C116.1 (CO1)	Understand the relationship between the environment and human activities to maintain the ecological balance. (K1)
C116.2 (CO2)	Identify societal issues and implement suitable technological solutions to eradicate. (K3)
C116.3 (CO3)	Acquire skills for scientific problem solving related to environmental pollution and Disaster Management. (K3)
C116.4 (CO4)	Disseminate the need for the natural resources and its application to meet the modern requirements. (K2)
C116.5 (CO5)	Aware of environmental issues and Protection Acts to achieve the Sustainable Development Goals. (K2)
C116.6 (CO6)	Recognize the need for population control measures and the environmental based value.education concepts for attaining an ecofriendly environment. (K2)

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SUB CODE / SUBJECT NAME: 20ESGE201/ENGINEERING PRACTICES LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C117.1 (CO1)	Elaborate on the components, gates, soldering practices. Calculate electrical parameters such as voltage, current, resistance and power.(K1)
C117.2 (CO2)	Design and implement Rectifier and Timer circuit. (K2)
C117.3 (CO3)	Measure the electrical energy by single phase and three phase energy meters. (K2)
C117.4 (CO4)	Prepare the carpentry and plumbing joints. (K2)
C117.5 (CO5)	Perform different types of welding joints and sheet metal works.(K2)
C117.6 (CO6)	Perform different machining operations in lathe and drilling.(K2)

SUB CODE / SUBJECT NAME: 20EEPL20/ ELECTRIC CIRCUITS AND SIMULATION LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C118.1 (CO1)	Use laboratory equipment and techniques to measure electrical quantities using multi-meters, power supplies and oscilloscopes and apply basic circuit laws. (K1)
C118.2 (CO2)	Examine the DC and AC Network theorems and apply to them in laboratory measurements. (K2)
C118.3 (CO3)	Analyze the transient response of series RL and RC electric circuits. (K4)
C118.4 (CO4)	Simulate the frequency behaviour of RLC electric circuits. (K5)
C118.5 (CO5)	Design and simulate the resonance circuits. (K6)
C118.6 (CO6)	Design and simulate the balanced and unbalanced three phase circuits. (K6)

COURSE CODE	COURSE OUTCOMES
C119.1 (CO1)	Construct a suitable resume and registration procedure for online mock assessments(K1)
C119.2 (CO2)	Handle various virtual meeting tools.(K3)
C119.3 (CO3)	Acquire exposure about online certification courses.(K4)
C119.4 (CO4)	Get involved and work in a collaborative manner.(K2)
C119.5 (CO5)	Gain knowledge in various presentation methodologies.(K1)
C119.6 (CO6)	Apply knowledge to practice Google suite features and SWOT analysis.(K3)

COURSE CODE	COURSE OUTCOMES
C120.1 (CO1)	Develop a healthy relationship & harmony with others(K1)
C120.2 (CO2)	Practice respecting every human being.(K3)
C120.3 (CO3)	Practice to eradicate negative temperaments.(K3)
C120.4 (CO4)	Acquire Respect, Honesty, Empathy, Forgiveness and Equality.(K4)
C120.5 (CO5)	Manage the cognitive abilities of an Individual.(K5)
C120.6 (CO6)	Understanding the importance of public speaking and teamwork.(K2)

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INFORMATION TECHNOLOGY

I SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA101 / ENGINEERING MATHEMATICS-I   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Understand the concepts of symmetric, skew symmetric, orthogonal matrices, properties of Eigen values and eigen vectors, the nature of a quadratic form, sequences and series, power series representation of functions, series representation of exponential, trigonometric logarithmic and hyperbolic functions.(K2)
C101.2 (CO2)	Compute the eigen values, eigen vectors of a matrix, diagonalize the quadratic form using orthogonal transformation and find the inverse and higher powers of a matrix using Cayley Hamilton theorem.(K3)
C101.3 (CO3)	Calculate the limit, derivative, partial derivatives, Jacobians of simple functions and evaluate integrals of single variable using the rules of integration. (K3)
C101.4 (CO4)	Determine the Taylor series representation of functions of one variable and two variables and evaluate maxima and minima of functions of one variable, two variables and several variables. (K3)
C101.5 (CO5)	Evaluate double integrals using change of order technique, double and triple integrals using change of variables technique and calculate surface areas and volume of solids of revolution. (K3)
C101.6 (CO6)	Compute the Fourier series, Sine and Cosine series representation of functions defined in a period and use Fourier series and Parseval's theorem to find the value of infinite series. (K3)

SUB CODE / SUBJECT NAME: 20HSEN101 / TECHNICAL ENGLISH-I   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	Comprehend conversations and talks presented in English(K2)
C102.2 (CO2)	Speak fluently in informal and formal contexts.(K1)
C102.3 (CO3)	Read articles of any kind and be able to comprehend.(K2)
C102.4 (CO4)	Write technical concepts in simple and lucid style.(K2)
C102.5 (CO5)	Prepare informal letters and e-mails efficiently.(K3)
C102.6 (CO6)	Present technical concepts and summaries in correct grammar and vocabulary.(K1)

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SUB CODE / SUBJECT NAME: 20BSPH101 / ENGINEERING PHYSICS   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C103.1 (CO1)	Understand the basics of crystals, structures and crystal growth techniques.(K3)
C103.2 (CO2)	Select a right choice of materials based on their properties for potential applications / acquire fundamental knowledge on elasticity and its applications relevant to the field of engineering.(K3)
C103.3 (CO3)	Apply the advanced physics concepts of quantum theory to characterize the matter.(K4)
C103.4 (CO4)	Understand the basic concepts in laser and its types and fiber optics.(K3)
C103.5 (CO5)	Acquire adequate knowledge on the fundamental concepts of thermal properties of materials applications.(K2)
C103.6 (CO6)	Evaluate the applications of powder diffraction method, optical fibers in sensors, quantum mechanical tunneling and thermal materials in expansion joints and heat exchangers.(K4)

SUB CODE / SUBJECT NAME: 20BSCY101/ ENGINEERING CHEMISTRY   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C104.1 (CO1)	Identify the origin of water resources and develop innovative methods to produce soft water for industrial use and potable water at cheaper cost.(K2)
C104.2 (CO2)	Recognize the basic design of adsorption systems and its industrial applications and the basics concepts of electrochemistry to understand battery technology.(K2)
C104.3 (CO3)	Apply the principles of electrochemistry to corrosion process and the applications of protective coatings to overcome the corrosion.(K3)
C104.4 (CO4)	Disseminating the knowledge about the chemistry of fuels and combustion and its application in various levels.(K2)
C104.5 (CO5)	Acquire the basics of non-conventional sources of energy and understand the principles and the reaction mechanism of batteries and fuel cells.(K3)
C104.6 (CO6)	Illustrate the synthesis and applications of polymers, composites and nano-materials.(K2)

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SUB CODE / SUBJECT NAME: 20ESCS101 / PROBLEM SOLVING AND PROGRAMMING IN C

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C105.1 (CO1)	Develop efficient algorithms for solving a problem.(K2).
C105.2 (CO2)	Use the various constructs in C to develop simple applications.(K3)
C105.3 (CO3)	Design and Implement applications using Array & Strings.(K3)
C105.4 (CO4)	Develop applications using Functions and Pointers.(K6)
C105.5 (CO5)	Design and Develop applications using Structures.(K3)
C105.6 (CO6)	Design and Develop applications using Files.(K4)

SUB CODE / SUBJECT NAME: 20ESGE101 / ENGINEERING GRAPHICS   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	Relate thoughts and ideas graphically in a neat fashion and ability to perform sketching of engineering curves used in engineering practices, multiple views of objects.(K1)
C106.2 (CO2)	Understand the concepts of orthographic projections for basic geometrical constructions.(K2)
C106.3 (CO3)	Acquire the knowledge of orthographic projection in three dimensional object.(K2)
C106.4 (CO4)	Develop knowledge about Sectioning and apply interior shapes of solids.(K3)
C106.5 (CO5)	Analyze the concepts of design in developing various 3 dimensional projections.(K4)
C106.6 (CO6)	Build a strong foundation to analyze the design in various dimensions.(K4)

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SUB CODE / SUBJECT NAME: 20BSPL101/ PHYSICS AND CHEMISTRY LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Apply the principles of thermal physics and properties of matter to evaluate the properties of materials and to determine the physical properties of liquid using ultrasonic interferometer.(K1)
C107.2 (CO2)	Understand measurement technique and usage of new instruments in optics for real time application in engineering.(K2)
C107.3 (CO3)	Apply the knowledge of semiconductor materials to evaluate the band gap and Hall coefficient of materials and to study the characteristics of solar cell for engineering solutions.(K3)
C107.4 (CO4)	Apply the different techniques of quantitative chemical analysis to generate experimental skills in building technical competence.(K2)
C107.5 (CO5)	Apply basic techniques used in chemistry laboratories for water analyses/purification and estimates the ions/metal ions present in domestic/industry wastewater.(K2)
C107.6 (CO6)	Utilize the fundamental laboratory techniques for analyses such as volumetric titrations, conduct metric, potentiometric and spectroscopy.(K2)

SUB CODE / SUBJECT NAME: 20ESPL101 / PROGRAMMING IN C LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C108.1 (CO1)	Solve some simple problems leading to specific applications.(K3)
C108.2 (CO2)	Demonstrate C programming development environment, compiling, debugging, linking and executing a program.(K3)
C108.3 (CO3)	Develop C programs for simple applications making use of basic constructs, arrays and strings. (K4)
C108.4 (CO4)	Develop C programs involving functions and recursion. (K4)
C108.5 (CO5)	Develop C programs involving pointers, and structures.(K6)
C108.6 (CO6)	Design applications using sequential and random access file.(K4)

COURSE CODE	COURSE OUTCOMES
C109.1 (CO1)	Learn and apply social network ethics.(K3)
C109.2 (CO2)	Understand the browsing culture.(K2)
C109.3 (CO3)	Analyze the networking concepts.(K4)
C109.4 (CO4)	Develop self-professionalism.(K3)
C109.5 (CO5)	Gain hands-on experience in various digital identification procedures.(K2)
C109.6 (CO6)	Analyse and apply the different digital payment gateway methods.(K4)

COURSE CODE	COURSE OUTCOMES
C110.1 (CO1)	Become an individual in knowing the self.(K4)
C110.2 (CO2)	Acquire and express Personal Values, Spiritual values and fitness. (K4)
C110.3 (CO3)	Practice simple physical exercise and breathing techniques.(K2)
C110.4 (CO4)	Practice Yoga asana which will enhance the quality of life.(K1)
C110.5 (CO5)	Practice Meditation and get benefitted.(K1)
C110.6 (CO6)	Understanding moral values and need of physical fitness.(K2)

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II SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA204 / DISCRETE STRUCTURES   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C111.1 (CO1)	Check whether the relation is Binary, Partial Order or equivalence and a function is injective, subjective or bijective, compute inverse and composite of functions (K3)
C111.2 (CO2)	Solve problems on permutations and combinations using the Counting principle and Pigeon hole Principle (K3)
C111.3 (CO3)	Construct mathematical arguments and test the validity of statements using the rules of logic, rules of inference, quantiiers, proof strategies and mathematical induction. (K3)
C111.4 (CO4)	Identify a set with the given binary relation as a group, normal group, ring, ields and Boolean algebra. (K3)
C111.5 (CO5)	Identify Graph isomorphism, Eulerian and Hamiltonian walks and sorting in trees (K3)
C111.6 (CO6)	Explain the properties of functions, relations and graph (K2)

SUB CODE / SUBJECT NAME: 20HSEN201 / TECHNICAL ENGLISH - II   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	Acquire the ability to speak effectively in real life situations (K1)
C112.2 (CO2)	Adapt group behaviour and execute the role as a contributing team member (K1)
C112.3 (CO3)	Employ active and passive vocabulary in oral and written communication (K2)
C112.4 (CO4)	Share opinions and suggestions effectively in conversations, debates and discussions (K2)
C112.5 (CO5)	Prepare winning job applications (K3)
C112.6 (CO6)	Write technical reports convincingly (K3)

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SUB CODE / SUBJECT NAME: 20BSPH203/ PHYSICS FOR INFORMATION SCIENCE

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C113.1 (CO1)	Understand the basic concepts of various free electron theory and to determine the electrical properties of solids. (K3)
C113.2 (CO2)	Apply the classical and quantum free electron theory to determine the properties of conductors (K3)
C113.3 (CO3)	To analyze the properties of semiconductors and its applications (K4)
C113.4 (CO4)	To analyze the mechanisms involved in the magnetic and optical materials using the quantum concepts (K4)
C113.5 (CO5)	To gain the knowledge on superconducting materials and nanostructures and its applications. (K2)
C113.6 (CO6)	To demonstrate the working principles of micro and nanoelectronic devices. (K3)

SUB CODE / SUBJECT NAME: 20BSCY201/ ENVIRONMENTAL SCIENCE AND ENGINEERING

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C114.1 (CO1)	Understand the relationship between the environment and human activities to maintain the ecological balance. (K1)
C114.2 (CO2)	Identify societal issues and implement suitable technological solutions to eradicate. (K3)
C114.3 (CO3)	Acquire skills for scientific problem solving related to environmental pollution and Disaster Management. (K3)
C114.4 (CO4)	Disseminate the need for the natural resources and its application to meet the modern requirements. (K2)
C114.5 (CO5)	Aware of environmental issues and Protection Acts to achieve the Sustainable Development Goals. (K2)
C114.6 (CO6)	Recognize the need for population control measures and the environmental based value.education concepts for attaining an ecofriendly environment. (K2)

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SUB CODE / SUBJECT NAME: 20ESIT202 / PYTHON PROGRAMMING   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C115.1 (CO1)	Define the syntax and semantics of python programming language and Understand control low statements, strings and functions. (K1)
C115.2 (CO2)	Determine the methods to create and manipulate python programs by utilizing the data structures like lists, dictionaries, tuples and sets. (K3)
C115.3 (CO3)	Annotate the concepts of functions, modules and packages in python. (K2)
C115.4 (CO4)	Understand the concepts of iles, exception handling and also apply the object oriented programming concept by creating classes and objects. (K6)
C115.5 (CO5)	Illustrate and use some of the libraries available with python.(K4)
C115.6 (CO6)	Applying the problem solving concepts to various applications using python.(K6)

SUB CODE / SUBJECT NAME: 20ESIT203 / DIGITAL PRINCIPLES AND SYSTEM DESIGN

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C116.1 (CO1)	Understanding Boolean algebra, number systems and simplify Boolean functions using Kmap. (K2)
C116.2 (CO2)	Analyze the Combinational and sequential Circuits. (K2)
C116.3 (CO3)	Design Combinational Circuits and Sequential circuits (K5)
C116.4 (CO4)	Implement designs using Programmable Logic Devices. (K3)
C116.5 (CO5)	Apply HDL code for combinational and Sequential Circuits. (K3)
C116.6 (CO6)	Design and troubleshoot logic circuits. (K4)

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SUB CODE / SUBJECT NAME: 20ESPL201 / PYTHON PROGRAMMING LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C117.1 (CO1)	Implement simple programs for describing the syntax, semantics and control low statements. (K3)
C117.2 (CO2)	Examine the core data structures like String, lists, dictionaries, tuples and sets in Python to store, process and sort the data. (K2)
C117.3 (CO3)	Articulate the concepts of functions, modules and packages in Python. (K2)
C117.4 (CO4)	Illustrate the applications of python libraries. (K3)
C117.5 (CO5)	Create iles and perform read and write operations in it. (K3)
C117.6 (CO6)	Handle exceptions and create classes and objects for any real time applications. (K3)

SUB CODE / SUBJECT NAME: 20ESPL202/ DIGITAL LABORATORY   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C118.1 (CO1)	Implement simpliied combinational circuits using basic logic gates. (K6)
C118.2 (CO2)	Implement combinational circuits using MSI devices. (K6)
C118.3 (CO3)	Implement sequential circuits like registers and counters.(K6)
C118.4 (CO4)	Simulate combinational and sequential circuits using HDL.(K4)
C118.5 (CO5)	Implement designs using Programmable Logic Devices. (K6)
C118.6 (CO6)	Design and implementation of a simple digital system.(K6)

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SUB CODE / SUBJECT NAME: 20ESGE201/ENGINEERING PRACTICES LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C119.1 (CO1)	Elaborate on the components, gates, soldering practices. Calculate electrical parameters such as voltage, current, resistance and power.(K1)
C119.2 (CO2)	Design and implement Rectifier and Timer circuit. (K2)
C119.3 (CO3)	Measure the electrical energy by single phase and three phase energy meters. (K2)
C119.4 (CO4)	Prepare the carpentry and plumbing joints. (K2)
C119.5 (CO5)	Perform different types of welding joints and sheet metal works.(K2)
C119.6 (CO6)	Perform different machining operations in lathe and drilling.(K2)

SUB CODE / SUBJECT NAME: 20TPHS201 / SKILL ENHANCEMENT   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C120.1 (CO1)	Construct a suitable resume and registration procedure for online mock assessments(K1)
C120.2 (CO2)	Handle various virtual meeting tools.(K3)
C120.3 (CO3)	Acquire exposure about online certification courses.(K4)
C120.4 (CO4)	Get involved and work in a collaborative manner.(K2)
C120.5 (CO5)	Gain knowledge in various presentation methodologies.(K1)
C120.6 (CO6)	Apply knowledge to practice Google suite features and SWOT analysis.(K3)

COURSE CODE	COURSE OUTCOMES
C121.1 (CO1)	Develop a healthy relationship & harmony with others(K1)
C121.2 (CO2)	Practice respecting every human being.(K3)
C121.3 (CO3)	Practice to eradicate negative temperaments.(K3)
C121.4 (CO4)	Acquire Respect, Honesty, Empathy, Forgiveness and Equality.(K4)
C121.5 (CO5)	Manage the cognitive abilities of an Individual.(K5)
C121.6 (CO6)	Understanding the importance of public speaking and teamwork.(K2)

MECHNICAL ENGINEERING

I SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA101 / ENGINEERING MATHEMATICS-I   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Understand the concepts of symmetric, skew symmetric, orthogonal matrices, properties of Eigen values and eigen vectors, the nature of a quadratic form, sequences and series, power series representation of functions, series representation of exponential, trigonometric logarithmic and hyperbolic functions.(K2)
C101.2 (CO2)	Compute the eigen values, eigen vectors of a matrix, diagonalize the quadratic form using orthogonal transformation and find the inverse and higher powers of a matrix using Cayley Hamilton theorem.(K3)
C101.3 (CO3)	Calculate the limit, derivative, partial derivatives, Jacobians of simple functions and evaluate integrals of single variable using the rules of integration. (K3)
C101.4 (CO4)	Determine the Taylor series representation of functions of one variable and two variables and evaluate maxima and minima of functions of one variable, two variables and several variables. (K3)
C101.5 (CO5)	Evaluate double integrals using change of order technique, double and triple integrals using change of variables technique and calculate surface areas and volume of solids of revolution. (K3)
C101.6 (CO6)	Compute the Fourier series, Sine and Cosine series representation of functions defined in a period and use Fourier series and Parseval's theorem to find the value of infinite series. (K3)

SUB CODE / SUBJECT NAME: 20HSEN101 / TECHNICAL ENGLISH-I   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	Comprehend conversations and talks presented in English(K2)
C102.2 (CO2)	Speak fluently in informal and formal contexts.(K1)
C102.3 (CO3)	Read articles of any kind and be able to comprehend.(K2)
C102.4 (CO4)	Write technical concepts in simple and lucid style.(K2)
C102.5 (CO5)	Prepare informal letters and e-mails efficiently.(K3)
C102.6 (CO6)	Present technical concepts and summaries in correct grammar and vocabulary.(K1)

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SUB CODE / SUBJECT NAME: 20BSPH101 / ENGINEERING PHYSICS   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C103.1 (CO1)	Understand the basics of crystals, structures and crystal growth techniques.(K3)
C103.2 (CO2)	Select a right choice of materials based on their properties for potential applications / acquire fundamental knowledge on elasticity and its applications relevant to the field of engineering.(K3)
C103.3 (CO3)	Apply the advanced physics concepts of quantum theory to characterize the matter.(K4)
C103.4 (CO4)	Understand the basic concepts in laser and its types and fiber optics.(K3)
C103.5 (CO5)	Acquire adequate knowledge on the fundamental concepts of thermal properties of materials applications.(K2)
C103.6 (CO6)	Evaluate the applications of powder diffraction method, optical fibers in sensors, quantum mechanical tunneling and thermal materials in expansion joints and heat exchangers.(K4)

SUB CODE / SUBJECT NAME: 20BSCY101/ ENGINEERING CHEMISTRY   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C104.1 (CO1)	Identify the origin of water resources and develop innovative methods to produce soft water for industrial use and potable water at cheaper cost.(K2)
C104.2 (CO2)	Recognize the basic design of adsorption systems and its industrial applications and the basics concepts of electrochemistry to understand battery technology.(K2)
C104.3 (CO3)	Apply the principles of electrochemistry to corrosion process and the applications of protective coatings to overcome the corrosion.(K3)
C104.4 (CO4)	Disseminating the knowledge about the chemistry of fuels and combustion and its application in various levels.(K2)
C104.5 (CO5)	Acquire the basics of non-conventional sources of energy and understand the principles and the reaction mechanism of batteries and fuel cells.(K3)
C104.6 (CO6)	Illustrate the synthesis and applications of polymers, composites and nano-materials.(K2)

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SUB CODE / SUBJECT NAME: 20ESCS101 / PROBLEM SOLVING AND PROGRAMMING IN C

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C105.1 (CO1)	Develop efficient algorithms for solving a problem.(K2).
C105.2 (CO2)	Use the various constructs in C to develop simple applications.(K3)
C105.3 (CO3)	Design and Implement applications using Array & Strings.(K3)
C105.4 (CO4)	Develop applications using Functions and Pointers.(K6)
C105.5 (CO5)	Design and Develop applications using Structures.(K3)
C105.6 (CO6)	Design and Develop applications using Files.(K4)

SUB CODE / SUBJECT NAME: 20ESGE101 / ENGINEERING GRAPHICS   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	Relate thoughts and ideas graphically in a neat fashion and ability to perform sketching of engineering curves used in engineering practices, multiple views of objects.(K1)
C106.2 (CO2)	Understand the concepts of orthographic projections for basic geometrical constructions.(K2)
C106.3 (CO3)	Acquire the knowledge of orthographic projection in three dimensional object.(K2)
C106.4 (CO4)	Develop knowledge about Sectioning and apply interior shapes of solids.(K3)
C106.5 (CO5)	Analyze the concepts of design in developing various 3 dimensional projections.(K4)
C106.6 (CO6)	Build a strong foundation to analyze the design in various dimensions.(K4)

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SUB CODE / SUBJECT NAME: 20BSPL101/ PHYSICS AND CHEMISTRY LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Apply the principles of thermal physics and properties of matter to evaluate the properties of materials and to determine the physical properties of liquid using ultrasonic interferometer.(K1)
C107.2 (CO2)	Understand measurement technique and usage of new instruments in optics for real time application in engineering.(K2)
C107.3 (CO3)	Apply the knowledge of semiconductor materials to evaluate the band gap and Hall coefficient of materials and to study the characteristics of solar cell for engineering solutions.(K3)
C107.4 (CO4)	Apply the different techniques of quantitative chemical analysis to generate experimental skills in building technical competence.(K2)
C107.5 (CO5)	Apply basic techniques used in chemistry laboratories for water analyses/purification and estimates the ions/metal ions present in domestic/industry wastewater.(K2)
C107.6 (CO6)	Utilize the fundamental laboratory techniques for analyses such as volumetric titrations, conduct metric, potentiometric and spectroscopy.(K2)

SUB CODE / SUBJECT NAME: 20ESPL101 / PROGRAMMING IN C LABORATORY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C108.1 (CO1)	Solve some simple problems leading to specific applications.(K3)
C108.2 (CO2)	Demonstrate C programming development environment, compiling, debugging, linking and executing a program.(K3)
C108.3 (CO3)	Develop C programs for simple applications making use of basic constructs, arrays and strings. (K4)
C108.4 (CO4)	Develop C programs involving functions and recursion. (K4)
C108.5 (CO5)	Develop C programs involving pointers, and structures.(K6)
C108.6 (CO6)	Design applications using sequential and random access file.(K4)

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SUB CODE / SUBJECT NAME: 20TPHS101 / SKILL ENHANCEMENT   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C109.1 (CO1)	Learn and apply social network ethics.(K3)
C109.2 (CO2)	Understand the browsing culture.(K2)
C109.3 (CO3)	Analyze the networking concepts.(K4)
C109.4 (CO4)	Develop self-professionalism.(K3)
C109.5 (CO5)	Gain hands-on experience in various digital identification procedures.(K2)
C109.6 (CO6)	Analyse and apply the different digital payment gateway methods.(K4)

SUB CODE / SUBJECT NAME: 20HSMG101/ PERSONAL VALUES   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C110.1 (CO1)	Become an individual in knowing the self.(K4)
C110.2 (CO2)	Acquire and express Personal Values, Spiritual values and fitness. (K4)
C110.3 (CO3)	Practice simple physical exercise and breathing techniques.(K2)
C110.4 (CO4)	Practice Yoga asana which will enhance the quality of life.(K1)
C110.5 (CO5)	Practice Meditation and get benefitted.(K1)
C110.6 (CO6)	Understanding moral values and need of physical fitness.(K2)

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II SEMESTER

SUB CODE / SUBJECT NAME: 20BSMA201/ENGINEERING MATHEMATICS -II   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C111.1 (CO1)	Compute the derivatives of scalar point, vector point functions and evaluate line, surface and volume integrals of vector point functions using Stokes, Greens, and Gauss divergence theorems.(K3)
C111.2 (CO2)	Solve Ordinary differential equations of second and higher order with constant coefficients, variable coefficients and simultaneous linear differential equations.(K3)
C111.3 (CO3)	Construct an analytic function and find the harmonic conjugate, apply the properties of analytic functions to check for harmonic and orthogonal functions and find the images of regions, straight lines and points in the Zplane under the mappings and bilinear transformation.(K3)
C111.4 (CO4)	Find the Taylor's series about a point and Laurent's series in an annular region of analytic functions and Evaluate integrals of analytic functions and real integrals over circular and semicircular contour using Cauchy Goursat theorem, Cauchy integral formula and Cauchy Residue theorem.(K3)
C111.5 (CO5)	Find the Laplace transforms of simple and periodic functions by applying the definition and theorems on Laplace transforms.(K3)
C111.6 (CO6)	Determine the Inverse Laplace transform using the theorems, the method of partial fractions, Convolution and solve linear second order ordinary differential equations with constant coefficients using Laplace transforms.(K3)

SUB CODE / SUBJECT NAME: 20HSEN201 / TECHNICAL ENGLISH - II   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	Acquire the ability to speak effectively in real life situations.(K1)
C112.2 (CO2)	Adapt group behaviour and execute the role as a contributing team member. .(K1)
C112.3 (CO3)	Employ active and passive vocabulary in oral and written communication.(K2)
C112.4 (CO4)	Share opinions and suggestions effectively in conversations, debates and discussions,(K2)
C112.5 (CO5)	Prepare winning job applications.(K3)
C112.6 (CO6)	Write reports and winning job applications. (K3)

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SUB CODE / SUBJECT NAME: 20ESIT201/ PYTHON PROGRAMMING WITH LAB   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C113.1 (CO1)	Describe the syntax, semantics and control flow statements of Python programming.(K2)
C113.2 (CO2)	Implement simple programs using control structures in Python.(K3)
C113.3 (CO3)	Explain the methods to create and manipulate strings, lists, dictionaries, tuples and sets.(K2)
C113.4 (CO4)	Articulate the concepts of functions, modules and packages in Python.(K2)
C113.5 (CO5)	Implement simple programs using Python Data types and functions.(K3)
C113.6 (CO6)	Apply the concepts of Exception handling, classes and objects.(K3)

SUB CODE / SUBJECT NAME: 20BSCY201/ ENVIRONMENTAL SCIENCE AND ENGINEERING

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C114.1 (CO1)	Understand the relationship between the environment and human activities to maintain the ecological balance. (K1)
C114.2 (CO2)	Identify societal issues and implement suitable technological solutions to eradicate. (K3)
C114.3 (CO3)	Acquire skills for scientific problem solving related to environmental pollution and Disaster Management. (K3)
C114.4 (CO4)	Disseminate the need for the natural resources and its application to meet the modern requirements. (K2)
C114.5 (CO5)	Aware of environmental issues and Protection Acts to achieve the Sustainable Development Goals. (K2)
C114.6 (CO6)	Recognize the need for population control measures and the environmental based value.education concepts for attaining an ecofriendly environment. (K2)

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SUB CODE / SUBJECT NAME: 20ESEE201 / ELECTRICAL TECHNOLOGY WITH LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C115.1 (CO1)	Understand electric circuits and apply circuit theorems. (K2)
C115.2 (CO2)	Apply the knowledge of electric circuits for engineering application. (K3)
C115.3 (CO3)	Understand the working principles of various electrical machines. (K2)
C115.4 (CO4)	Choose the electrical machines for different applications. (K3)
C115.5 (CO5)	Analyze the performance of electrical machines and electrical circuits in practical. (K4)
C115.6 (CO6)	Build the knowledge to select the starters and braking for electrical machines. (K2)

SUB CODE / SUBJECT NAME: 20BSPH202 / PHYSICS OF MATERIALS

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C116.1 (CO1)	Understand the concept of formation of alloys and invariant phase reactions related to unary and binary system (K3)
C116.2 (CO2)	Demonstrate the practical exposure on microstructure of ferrous and non-ferrous alloys and their applications (K3)
C116.3 (CO3)	Explain the classification, phase transformation and the effect alloying elements in ferrous alloys (K2)
C116.4 (CO4)	Analyze the various testing procedures for understanding the properties of materials and the strengthening methods (K4)
C116.5 (CO5)	Gain knowledge on magnetic, dielectric, super conducting, composite, ceramic materials, metallic glasses, shape memory alloys, nanomaterials and their properties (K2)
C116.6 (CO6)	Apply the suitable magnetic, superconducting, ceramic, nano, composite materials and shape memory alloys for specific engineering applications (K3)

COURSE CODE	COURSE OUTCOMES
C117.1 (CO1)	Elaborate on the components, gates, soldering practices. Calculate electrical parameters such as voltage, current, resistance and power.(K1)
C117.2 (CO2)	Design and implement Rectifier and Timer circuit. (K2)
C117.3 (CO3)	Measure the electrical energy by single phase and three phase energy meters. (K2)
C117.4 (CO4)	Prepare the carpentry and plumbing joints. (K2)
C117.5 (CO5)	Perform different types of welding joints and sheet metal works.(K2)
C117.6 (CO6)	Perform different machining operations in lathe and drilling.(K2)

SUB CODE / SUBJECT NAME: 20TPHS201 / SKILL ENHANCEMENT   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C118.1 (CO1)	Construct a suitable resume and registration procedure for online mock assessments(K1)
C118.2 (CO2)	Handle various virtual meeting tools.(K3)
C118.3 (CO3)	Acquire exposure about online certification courses.(K4)
C118.4 (CO4)	Get involved and work in a collaborative manner.(K2)
C118.5 (CO5)	Gain knowledge in various presentation methodologies.(K1)
C118.6 (CO6)	Apply knowledge to practice Google suite features and SWOT analysis.(K3)

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SUB CODE / SUBJECT NAME: 20HSMG201 / INTERPERSONAL VALUES   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C119.1 (CO1)	Develop a healthy relationship & harmony with others(K1)
C119.2 (CO2)	Practice respecting every human being.(K3)
C119.3 (CO3)	Practice to eradicate negative temperaments.(K3)
C119.4 (CO4)	Acquire Respect, Honesty, Empathy, Forgiveness and Equality.(K4)
C119.5 (CO5)	Manage the cognitive abilities of an Individual.(K5)
C119.6 (CO6)	Understanding the importance of public speaking and teamwork.(K2)

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POST GRADUATE PROGRAM
MASTER OF BUSINESS ADMINISTRATION (MBA)

COURSE OUTCOMES (COS)
I SEMESTER

SUB CODE / SUBJECT NAME: 20MBT101 / ACCOUNTING FOR DECISION MAKING

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Ability to learn the basic concepts of financial, cost and management accounting.
C101.2 (CO2)	Understand the interpretation of various financial, cost and management accounting results.
C101.3 (CO3)	Enable to enhancing Student skills in accounting decision making in management professions.
C101.4 (CO4)	Students will able to apply various accounting decision skills for performance of the organisation
C101.5 (CO5)	Student gains the practical knowledge as accounting profession by using ideas and judgements.
C101.6 (CO6)	Enable to design new accounting and financial strategy solutions for sustaining the business.

SUB CODE / SUBJECT NAME: 20MBT102 / ECONOMIC ANALYSIS FOR MANAGERS

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	To Relate with principles of micro and macro economics
C102.2 (CO2)	Understanding the concepts of scarcity and efficiency for resource allocation.
C102.3 (CO3)	Ability to learn consumer and producer behavior
C102.4 (CO4)	Applying the functioning principles of product and factor markets
C102.5 (CO5)	Enhancing the economic environment for business
C102.6 (CO6)	Empathizing the implications of economic policy to society as a whole

COURSE CODE	COURSE OUTCOMES
C103.1 (CO1)	Examine the applicability of the concept of organizational behaviour to understand the behaviour of people in the organization.
C103.2 (CO2)	Analyse the complexities associated with management of individual behaviour in the organization.
C103.3 (CO3)	Analyse the complexities associated with management of the group behaviour in the organization.
C103.4 (CO4)	Evaluate the appropriateness of various leadership styles and conflict management strategies used in organizations
C103.5 (CO5)	Exhibit how organizational change and culture affect working relationships within organizations.
C103.6 (CO6)	Exhibit how the organizational behaviour can integrate in understanding the motivation behind behaviour of people in the organization

SUB CODE / SUBJECT NAME: 20MBT104/ BUSINESS STATISTICS & ANALYTICS FOR DECISION MAKING

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C104.1 (CO1)	Summarize data sets using Descriptive statistics
C104.2 (CO2)	Analyse the relationship between two variables
C104.3 (CO3)	Analyse trend and seasonality in a time series data
C104.4 (CO4)	Draw conclusion about a population using testing of hypothesis
C104.5 (CO5)	Apply statistics to different managerial situations.
C104.6 (CO6)	Apply time series to business forecasting

SUB CODE / SUBJECT NAME: 20MBT105/ LEGAL & BUSINESS ENVIRONMENT   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C105.1 (CO1)	Have knowledge on commercial law
C105.2 (CO2)	Understand the concepts and legal formalities pertaining to forming and managing companies and negotiable instruments
C105.3 (CO3)	Have insights into rights of intellectual property owners and to gain knowledge on ambit of cyber space
C105.4 (CO4)	Understand rights of consumer and aware of environmental law and competition forum.
C105.5 (CO5)	Gain knowledge into corporate tax planning and GST
C105.6 (CO6)	Able to comply with relevant laws in order to maintain ethicality in business practices

SUB CODE / SUBJECT NAME: 20MBT106/ PRINCIPLES OF MANAGEMENT   YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	Understanding of Management Concepts and management functions.
C106.2 (CO2)	Analyze the global situation including decision making and environment that will impact the management of Organization.
C106.3 (CO3)	Ability to integrate management principles into management practices
C106.4 (CO4)	Evaluate managerial approaches to address organizational issues.
C106.5 (CO5)	Knowledge on critical management theories and concepts and apply in an organizational context.
C106.6 (CO6)	Understanding the communication system and its significance.

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Defining and recalling the basic concepts and fundamentals of entrepreneurship
C107.2 (CO2)	Ability to interpret on the ideas and provide appropriate suggestions on business decisions
C107.3 (CO3)	Capability to construct new paradigms by applying the acquired knowledge
C107.4 (CO4)	Proficiency in interpreting information and reasoning out evidence to support efficiency
C107.5 (CO5)	Appraising judgements and opinions for assigned task based on the information
C107.6 (CO6)	Proposing a model or new pattern of solution for the future and present pressing issues.

COURSE CODE	COURSE OUTCOMES
C108.1 (CO1)	Ability to ask the right questions, in a given problem situation
C108.2 (CO2)	Grasping of management theory, by providing real-life examples of the underlying theoretical concepts
C108.3 (CO3)	Understand the exposure to the actual working of business and other organizations in the real world
C108.4 (CO4)	Reflect the reality of managerial decision-making in the real world
C108.5 (CO5)	Understand the ambiguity and complexity that accompany most management issues
C108.6 (CO6)	Exhibit the concepts gained to solve the real time issues

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SUB CODE / SUBJECT NAME: 20MBP109/ LIFE AND MANAGERIAL SKILLS   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C109.1 (CO1)	Demonstrate individual behavioral and interpersonal skills
C109.2 (CO2)	Establish the life & managerial skills learning into practical applications
C109.3 (CO3)	Improve personal skills (attitudinal and behavioural
C109.4 (CO4)	Create a better personal and professional environment by applications of these skills.
C109.5 (CO5)	Demonstrate out-of-box problem solving skills
C109.6 (CO6)	Application of the skills for professional and personal advancement

SUB CODE / SUBJECT NAME: 20MBP110/ IMMERSION PROJECT   **YEAR / SEM: I/I**

COURSE CODE	COURSE OUTCOMES
C110.1 (CO1)	Develop the civic responsibility in improving the society
C110.2 (CO2)	Better team work and learning to understand the organizations
C110.3 (CO3)	Understanding the functions of the departments of an organization
C110.4 (CO4)	Identify the entrepreneurial traits and challenges
C110.5 (CO5)	Describe the business model of an entrepreneurial venture
C110.6 (CO6)	Implementation of the overall internship exposure for the practical professional life

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II SEMESTER

SUB CODE / SUBJECT NAME: 20MBT201/ FINANCIAL MANAGEMENT DECISION AND APPLICATION

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C111.1 (CO1)	Enable to learn and gain basic concepts of financial management
C111.2 (CO2)	Understand the role of financial management for performing business
C111.3 (CO3)	Gain knowledge for financial oriented problem solving in an organization
C111.4 (CO4)	Enable to identify causes and make inferences for financial feasibility
C111.5 (CO5)	Able to enhancing, evaluating and making judgment skills based on financial information
C111.6 (CO6)	Students to gain comparative analysis skills and able to predict the future financial results of the organization.

SUB CODE / SUBJECT NAME: 20MBT202/ HUMAN RESOURCE MANAGEMENT   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	Demonstrate a basic understanding of different tools used in forecasting and planning human resource needs
C112.2 (CO2)	Design and formulate various HRM processes such as recruitment, selection, training and development,
C112.3 (CO3)	Analyse the key issues related to administering the human elements such as motivation, appraisal and career planning
C112.4 (CO4)	Apply rational design of compensation and salary administration
C112.5 (CO5)	Demonstrate the knowledge of HR concepts to take appropriate business decisions
C112.6 (CO6)	Ability to handle employee issues and evaluate the new trends in HRM

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SUB CODE / SUBJECT NAME: 20MBT203/ MARKETING MANAGEMENT   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C113.1 (CO1)	Familiarize with tools essential to creating, rolling out, and evaluating marketing activities
C113.2 (CO2)	Demonstrating the key techniques used for marketing, including social media marketing
C113.3 (CO3)	Developing the process of strategic decision-making for effective marketing research
C113.4 (CO4)	Examine to plan and prepare timely recommendations that support the alignment of marketing strategies
C113.5 (CO5)	Defending and selecting the right marketing channels in order to meet strategic objective
C113.6 (CO6)	Developing a holistic pattern for different marketing landscape

SUB CODE / SUBJECT NAME: 20MBT204 / MANAGING OPERATIONS   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C114.1 (CO1)	Recalling the core concepts of operations management and productivity
C114.2 (CO2)	Interpreting the key concepts in manufacturing and service organizations
C114.3 (CO3)	Applying the learned concepts to resolve the operational issues in order to enhance the productivity
C114.4 (CO4)	Inferring the causes or motives of operational issues
C114.5 (CO5)	Justifying the rank capacity locations, plan and schedule production by solving the problems
C114.6 (CO6)	Compiling the insights on projects management techniques for effective resource allocations

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SUB CODE / SUBJECT NAME: 20MBT205/ BUSINESS OPTIMIZATION TECHNIQUES

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C115.1 (CO1)	Formulate business problems as a linear programming model and solve using graphical or simplex method, explain the relationship between a linear program and its dual and perform sensitivity analysis.
C115.2 (CO2)	Find the optimal solution to the transportation and assignment problems
C115.3 (CO3)	To solve two-person zero-sum games using graphical and LP methods and to determine the optimal allocation of jobs to machines by minimizing total elapsed time for the problems of multiple jobs and machines
C115.4 (CO4)	Understand the various selective inventory control techniques and its applications
C115.5 (CO5)	. Understand and compute quantitative metrics of performance for queuing systems and use Monte-Carlo simulation techniques
C115.6 (CO6)	Apply resource management and optimization techniques in business

SUB CODE / SUBJECT NAME: 20MBT206 / BUSINESS RESEARCH METHODS   YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C116.1 (CO1)	Able to understand the complexities of business problem and convert it into research problem.
C116.2 (CO2)	Recognize the importance of ethical conduct in undertaking research
C116.3 (CO3)	Identify and apply the appropriate research approaches and techniques for a research problem.
C116.4 (CO4)	Demonstrate the ability to construct the instrument and carry out qualitative as well as quantitative data collection.
C116.5 (CO5)	. Demonstrate the ability to analyze quantitative data.
C116.6 (CO6)	Develop the ability to present research findings.

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SUB CODE / SUBJECT NAME: 20MBT207 / INFORMATION SYSTEMS & BUSINESS ANALYTICS
YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C117.1 (CO1)	Understand the role and importance of information in business
C117.2 (CO2)	Understand the significance of database management system
C117.3 (CO3)	Critically analyze the business problems and apply basic analytical knowledge in big data
C117.4 (CO4)	Recognize and understand the theory and models in the field of business analytics
C117.5 (CO5)	Ability to explore and visualize data for meaningful insights
C117.6 (CO6)	Able to comprehend the applications of business analytics

SUB CODE / SUBJECT NAME: 20MBP208 / DATA ANALYSIS LAB   **YEAR / SEM: I/II**

COURSE CODE	COURSE OUTCOMES
C118.1 (CO1)	Understand the basic features of spreadsheet functions
C118.2 (CO2)	Analyse and provide optimal solutions for management problems
C118.3 (CO3)	Understand the basics on preparing data files
C118.4 (CO4)	Analyse and interpret bivariate and multivariate statistics
C118.5 (CO5)	Understand data exploration and visualization using r-programming language
C118.6 (CO6)	Application of the concepts for the live projects.

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SUB CODE / SUBJECT NAME: 20MBP209/ SUMMER INTERNSHIP (4 WEEKS)

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C119.1 (CO1)	Understanding the fundamentals of base and professional subjects.
C119.2 (CO2)	Utilizing the subject knowledge to identify the problems in organizations
C119.3 (CO3)	Design and Carryout a Business research project
C119.4 (CO4)	Analyse and interpret bivariate and multivariate statistics
C119.5 (CO5)	Ability to do Statistical analysis and interpret the findings out of it.
C119.6 (CO6)	Communicating the finding to support decision making.

SUB CODE / SUBJECT NAME: 20MBP210 / PROFESSIONAL SKILL DEVELOPMENT

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C120.1 (CO1)	Demonstrate Team working skills and recognize team members strengths and weaknesses
C120.2 (CO2)	Discuss current happenings, practices, and issues in business environment
C120.3 (CO3)	Improve Professional communication
C120.4 (CO4)	Identify behaviors to enhance relationships
C120.5 (CO5)	Demonstrate increased proficiency in presentation skills
C120.6 (CO6)	Exhibit the imbibed skills to get employed

COURSE CODE	COURSE OUTCOMES
C121.1 (CO1)	Ability to ask the right questions, in a given problem situation
C121.2 (CO2)	Grasping of management theory, by providing real-life examples of the underlying theoretical concepts.
C121.3 (CO3)	Understand the exposure to the actual working of business and other organizations in the real world.
C121.4 (CO4)	Reflect the reality of managerial decision-making in the real world
C121.5 (CO5)	Understand the ambiguity and complexity that accompany most management issues
C121.6 (CO6)	Exhibit the concepts gained to solve the real time issues

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ME INDUSTRIAL SAFETY ENGINEERING

COURSE OUTCOMES (COS)
I SEMESTER
SUB CODE / SUBJECT NAME: 20PISMA101 / PROBABILITY AND STATISTICAL METHODS
YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Basic probability axioms and rules and the moments of discrete and continuous random variables.
C101.2 (CO2)	Least squares, correlation, regression, consistency, efficiency and un-biased ness of estimators, method of maximum likelihood estimation and Central Limit Theorem.
C101.3 (CO3)	Use statistical tests in testing hypotheses on data.
C101.4 (CO4)	Differentiate between various time series models and application of these models appropriately to engineering problems
C101.5 (CO5)	The students should have the ability to use the appropriate and relevant, fundamental and applied mathematical and statistical knowledge
C101.6 (CO6)	The students should have the ability to use the applied mathematical and statisticalmethodologies and modern computational tools.

SUB CODE / SUBJECT NAME: 20PISPC101 / PRINCIPLES OF SAFETY MANAGEMENT
YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	To understand the functions and activities of safety engineering department.
C102.2 (CO2)	To carry out a safety audit and prepare a report for the audit.
C102.3 (CO3)	To prepare an accident investigation report.
C102.4 (CO4)	To evaluate the safety performance of an organization from accident records.
C102.5 (CO5)	To identify various agencies, support institutions and government organizations involved in safety.
C102.6 (CO6)	The students should have the ability to use the the appropriate and relevant applied principles of safety procedures .

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SUB CODE / SUBJECT NAME: 20PISPC102 / ENVIRONMENTAL SAFETY

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C103.1 (CO1)	Illustrate and familiarize the basic concepts scope of environmental safety
C103.2 (CO2)	Understand the standards of professional conduct that are published by professional safety organizations and/or certification bodies
C103.3 (CO3)	Explain the ways in which environmental health problems have arisen due to air and water pollution.
C103.4 (CO4)	Illustrate the role of hazardous waste management and use of critical thinking to identify and assess environmental health risks.
C103.5 (CO5)	Discuss concepts of measurement of emissions and design emission measurement devices.
C103.6 (CO6)	The students should have the ability to use the appropriate and relevant environmental safety procedures in industry.

SUB CODE / SUBJECT NAME: 20PISPC103/ OCCUPATIONAL HEALTH AND INDUSTRIAL HYGIENE

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C104.1 (CO1)	To understand the various physiological functions of our body and the test methods for periodical monitoring of health.
C104.2 (CO2)	To understand the functions and activities of Occupational health services.
C104.3 (CO3)	To identify various types of hazards arising out of physical, chemical and biological agents in a process.
C104.4 (CO4)	To identify notifiable occupational diseases arising out of Occupation and suggest methods for the prevention of such diseases
C104.5 (CO5)	To understand the categorization of job heaviness, stress and strain in working organization
C104.6 (CO6)	The students should have the ability to use the appropriate and relevant occupational health and industrial hygiene procedures in industry.

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SUB CODE / SUBJECT NAME: 20PISPC104/ INDUSTRIAL SAFETY, HEALTH AND ENVIRONMENT ACTS

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C105.1 (CO1)	To list out important legislations related to health, Safety and Environment
C105.2 (CO2)	To list out requirements mentioned in factories act for the prevention of accidents.
C105.3 (CO3)	To understand the health and welfare provisions given in factories act.
C105.4 (CO4)	To understand the statutory requirements for an Industry on registration, license and its renewal.
C105.5 (CO5)	To prepare onsite and offsite emergency plan
C105.6 (CO6)	The students should have the ability to use the appropriate and relevant Industrial safety, health and environment acts and procedures in industry

SUB CODE / SUBJECT NAME: 20PISTE101/ INDUSTIAL SAFETY AND HAZARD ANALYSIS CASE STUDIES &REPORT WRITING

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	To make familiar about basic concepts of fire and explosion science.
C106.2 (CO2)	To know the different source of ignition and their prevention techniques.
C106.3 (CO3)	To understand the operation of various types of fire-fighting equipments.
C106.4 (CO4)	To understand the causes and prevention of explosion.
C106.5 (CO5)	To equip the students to effectively employ explosion protection techniques .
C106.6 (CO6)	To equip the students to effectively employ explosion significances to suit the industrial requirement

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SUB CODE / SUBJECT NAME: 20PISPC201 / FIRE ENGINEERING AND EXPLOSION CONTROL

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	To make familiar about basic concepts of fire and explosion science.
C106.2 (CO2)	To know the different source of ignition and their prevention techniques.
C106.3 (CO3)	To understand the operation of various types of fire-fighting equipments.
C106.4 (CO4)	To understand the causes and prevention of explosion.
C106.5 (CO5)	To equip the students to effectively employ explosion protection techniques.
C106.6 (CO6)	To equip the students to effectively employ explosion significances to suit the industrial requirement

SUB CODE / SUBJECT NAME: 20PISPC201 / FIRE ENGINEERING AND EXPLOSION CONTROL

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	To make familiar about basic concepts of fire and explosion science.
C107.2 (CO2)	To know the different source of ignition and their prevention techniques.
C107.3 (CO3)	To understand the operation of various types of fire-fighting equipments.
C107.4 (CO4)	To understand the causes and prevention of explosion.
C107.5 (CO5)	To equip the students to effectively employ explosion protection techniques.
C107.6 (CO6)	To equip the students to effectively employ explosion significances to suit the industrial requirement

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SUB CODE / SUBJECT NAME: 20PISPC202/ COMPUTER AIDED HAZARD ANALYSIS

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C108.1 (CO1)	This course would make familiarizing of basic concepts in risk and hazard
C108.2 (CO2)	Course would be helpful to understand the various instruments to bring safety in Industries
C108.3 (CO3)	Students would be trained to find solution for risk assessment studies through the use of software
C108.4 (CO4)	Students would be able to make use of a risk assessment technique to quantify the risk
C108.5 (CO5)	Course would equip the students effectively to employ hazard analysis techniques in Industry and helpful to prevent the accidents in Industry
C108.6 (CO6)	To equip the students to effectively employ computer aided hazard analysis, significances to suit the industrial requirement.

SUB CODE / SUBJECT NAME: 20PISPC203/ ELECTRICAL SAFETY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C109.1 (CO1)	This course would make familiar of basic concepts in electrical circuit and hazards involved in it.
C109.2 (CO2)	Course would be helpful to understand the electrical hazards in Industries.
C109.3 (CO3)	Students would be trained to find solution for risk assessment studies through the use of software
C109.4 (CO4)	Students would be able to understand the operation of various protection systems from electrical hazard
C109.5 (CO5)	Recognize different hazardous zones in Industries
C109.6 (CO6)	Equip the students to effectively employ the electrical safety techniques & equipments

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SUB CODE / SUBJECT NAME: 20PISPC204 /SAFETY IN CHEMICAL INDUSTRIES

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C110.1 (CO1)	This course would make familiar of safe design of equipment which are the essential to chemical industry and leads to design of entire process industries
C110.2 (CO2)	Course would be helpful to understand the design of pressure systems.
C110.3 (CO3)	Students would understand the problems and find innovative solutions while
C110.4 (CO4)	Industries facing Problems in commissioning and maintenance stages
C110.5 (CO5)	Students can prepare the emergency planning for chemical industry problems Students would be able to create safe storage systems
C110.6 (CO6)	Students can familiar about overall plant maintenance and safety norms.

SUB CODE / SUBJECT NAME: 20PISPC205 / MACHINE LEARNING &ARTIFICIAL INTELLIGENCE FOR INDUSTRIAL SAFETY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C111.1 (CO1)	To apply various aspects of intelligence to diverse industrial situations
C111.2 (CO2)	To apply neural network concepts in safety engineering discipline
C111.3 (CO3)	Differentiate between supervised, unsupervised, semi-supervised machine learning approaches
C111.4 (CO4)	Analyse and suggest appropriate machine learning approaches for various types of problems
C111.5 (CO5)	To apply various features of expert systems
C111.6 (CO6)	Students can familiar about applications of machine learning concepts in safety.

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SUB CODE / SUBJECT NAME: 20PISPL201 / INDUSTRIAL SAFETY LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	This course would make students to know and run the various equipment's to bring out the safety environment in the industry
C112.2 (CO2)	Course would be helpful for the students to measure the particulate matter and assess the impact of air pollution
C112.3 (CO3)	Students would be trained to conduct experiments to find out various environmental parameters
C112.4 (CO4)	Students would be able to use personal protective equipment in-dependently.
C112.5 (CO5)	Students can recognize the various problems with the use of software and hence to predict the real situations on major accidents.

SUB CODE / SUBJECT NAME: 20PISTP201 / INTERNSHIP (INDUSTRIAL SAFETY ASSESSMENT / AUDIT REPORT SUBMISSION

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C113.1 (CO1)	Understand the industrial process, safety management systems, policies, education and training about the concern industry
C113.2 (CO2)	Investigate accident and find the root cause analysis
C113.3 (CO3)	Interpret personal protective equipment, communication, employee behaviour emergency preparedness and planning, problems faced on implementing safety in industry by safety engineers etc
C113.4 (CO4)	Document the report of the industrial visit undergone
C113.5 (CO5)	Present the report of the documentation.

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ME BIG DATA ANALYTICS

COURSE OUTCOMES (COS)
I SEMESTER

SUB CODE / SUBJECT NAME: 20PBDMA101 / APPLIED PROBABILITY AND STATISTICS
YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C101.1 (CO1)	Basic probability axioms and rules and the moments of discrete and Continuous random variables.
C101.2 (CO2)	Consistency, efficiency and unbiasedness of estimators, method of Maximum likelihood estimation and Central Limit Theorem.
C101.3 (CO3)	Use statistical tests in testing hypotheses on data.
C101.4 (CO4)	Perform exploratory analysis of multivariate data, such as multivariate normal density, calculating descriptive statistics, testing for multivariate normality.
C101.5 (CO5)	The students should have the ability to use the appropriate and relevant, fundamental and applied mathematical and statistical knowledge, methodologies and modern computational tools.

SUB CODE / SUBJECT NAME: 20PBDPC101 / ADVANCED DATA STRUCTURES AND ALGORITHMS

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C102.1 (CO1)	Analyze the algorithmic efficiency of an algorithm
C102.2 (CO2)	Implement the various Heap and Search Data Structure
C102.3 (CO3)	Use geometric algorithm to solve computational problems
C102.4 (CO4)	Describe the parallel algorithm for parallel processing
C102.5 (CO5)	Apply the various data structures and algorithms to solve problems

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SUB CODE / SUBJECT NAME: 20PBDPC102 / BIG DATA MINING AND ANALYTICS

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C103.1 (CO1)	Design algorithms by employing Map Reduce technique for solving Big Data problems.
C103.2 (CO2)	Design algorithms for Big Data by deciding on the apt Features set
C103.3 (CO3)	Design algorithms for handling petabytes of datasets
C103.4 (CO4)	Design algorithms and propose solutions for Big Data by optimizing main memory consumption
C103.5 (CO5)	Design solutions for problems in Big Data by suggesting appropriate clustering techniques.

SUB CODE / SUBJECT NAME: PBDPC103 / MULTI CORE ARCHITECTURE

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C104.1 (CO1)	Identify the limitations of ILP and the need for multicore architectures
C104.2 (CO2)	Discuss the issues related to multiprocessing and suggest solutions
C104.3 (CO3)	Critically analyze the different types of inter connection networks
C104.4 (CO4)	Point out the salient features of different multicore architectures and how they exploit parallelism
C104.5 (CO5)	Design a memory hierarchy and optimize it

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SUB CODE / SUBJECT NAME: 20PBDMC101/ RESEARCH METHODOLOGY AND IPR

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C105.1 (CO1)	Ability to formulate research problem
C105.2 (CO2)	Ability to carry out research analysis
C105.3 (CO3)	Ability to follow research ethics
C105.4 (CO4)	Ability to understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity
C105.5 (CO5)	Ability to understand about IPR and filing patents in R & D

SUB CODE / SUBJECT NAME: 20PBDPL101/ ADVANCED DATA STRUCTURES LAB

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C106.1 (CO1)	Implement heap and various tree structure like AVL, Red-black, B and Segment trees
C106.2 (CO2)	Implement List ADTs and their operations.
C106.3 (CO3)	Solve the problems such as line segment intersection, convex shell and Voronoi diagram
C106.4 (CO4)	Develop programs for sorting, implementing trees and their traversal operations.
C106.5 (CO5)	Apply algorithm design techniques

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SUB CODE / SUBJECT NAME: 20PBDPL102/ BIG DATACOMPUTING LAB

YEAR / SEM: I/I

COURSE CODE	COURSE OUTCOMES
C107.1 (CO1)	Set up single and multi-node Hadoop Clusters.
C107.2 (CO2)	Apply Map Reduce technique for various algorithms.
C107.3 (CO3)	Design new algorithms that uses Map Reduce to apply on Unstructured and structured data.
C107.4 (CO4)	Develop Scalable machine learning algorithms for various Big data applications using Mahout.
C107.5 (CO5)	Represent NoSQL data.

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ME BIG DATA ANALYTICS
COURSE OUTCOMES (COS)
II SEMESTER

SUB CODE / SUBJECT NAME: 20PBDPC201/ FOUNDATION OF DATA SCIENCE

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C108.1 (CO1)	Obtain, clean/process and transform data.
C108.2 (CO2)	Analyze and interpret data using an ethically responsible approach.
C108.3 (CO3)	Use appropriate models of analysis, assess the quality of input, derive insight from results, and investigate potential issues.
C108.4 (CO4)	Apply computing theory, languages and algorithms, as well as mathematical and statistical models, and the principles of optimization to appropriately formulate and use data analyses.
C108.5 (CO5)	Formulate and use appropriate models of data analysis to solve hidden solutions to business-related challenges.

SUB CODE / SUBJECT NAME: 20PBDPC202/ BIG DATA SECURITY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C109.1 (CO1)	Design algorithms in a secure manner for Big data applications
C109.2 (CO2)	Use available security practices in big-data analytics.
C109.3 (CO3)	Mathematical foundations of security principles and different aspects of encryption techniques
C109.4 (CO4)	To Study the Role played by authentication in security
C109.5 (CO5)	Security concerns of big-data

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SUB CODE / SUBJECT NAME: 20PBDPC203/ MACHINE LEARNING TECHNIQUES
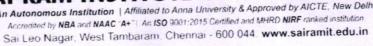
YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C110.1 (CO1)	Design a neural network for an application of your choice
C110.2 (CO2)	Implement probabilistic discriminative and generative algorithms for an application of your choice and analyze the results
C110.3 (CO3)	Use a tool to implement typical clustering algorithms for different types of applications
C110.4 (CO4)	Design and implement an HMM for a sequence model type of application
C110.5 (CO5)	Identify applications suitable for different types of machine learning with suitable justification

SUB CODE / SUBJECT NAME: 20PBDPC204 / NoSQL DATABASE

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C111.1 (CO1)	Demonstrate an understanding of installing MongoDB
C111.2 (CO2)	Explain the techniques used to create, insert, update and delete data/documents
C111.3 (CO3)	Demonstrate the various techniques used to query the database
C111.4 (CO4)	Explain the techniques to optimize querying using indexing.
C111.5 (CO5)	Explain the technique of splitting data across machines via sharding.

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SUB CODE / SUBJECT NAME: 20PBDPL201/ BIG DATA QUERY LANGUAGES LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C112.1 (CO1)	Set up R packages and develop a program using R Programming constructs.
C112.2 (CO2)	Solve Big Data problems using RHADOOP
C112.3 (CO3)	Understand setting up of Pig and solve Big Data problems
C112.4 (CO4)	Understand setting up of Hive and perform query processing.
C112.5 (CO5)	Apply Hadoop Streaming API for Big Data problems.

SUB CODE / SUBJECT NAME: 20PBDPL202/ MACHINE LEARNING TECHNIQUES LABORATORY

YEAR / SEM: I/II

COURSE CODE	COURSE OUTCOMES
C113.1 (CO1)	To learn to use Weka tool for implementing machine learning algorithms related to numeric data
C113.2 (CO2)	To learn the application of machine learning algorithms for text data
C113.3 (CO3)	To use dimensionality reduction algorithms for image processing applications
C113.4 (CO4)	To apply CRFs in text processing applications
C113.5 (CO5)	To use fundamental and advanced neural network algorithms for solving real-world data

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