SRI KRISHNA INSTITUTE OF TECHNOLOGY

(Accredited by NAAC, Approved by A.I.C.T.E. New Delhi, Recognised by Govt. of Karnataka & Affiliated to V.T U., Belagavi)
#57, Chimney Hills, Hesaraghatta Main Road, Chikkabanavara Post, Bengaluru- 560090

DEPARTMENT OF BASIC SCIENCE

SEM:1

Course Code: 1BMATS101   Course Name: Calculus And Linear Algebra

CO1	Apply the concepts of multivariable calculus and vector calculus to compute derivatives, optimize functions, and vector fields for applications in computer science engineering.
CO2	Solve system of linear equations and determine eigenvalues and eigenvectors using direct and iterative methods.
CO3	Apply the concepts of vector spaces and linear transformations to problems in computer science engineering.

Course Code: 1BMATE101   Course Name: Differential Calculus And Linear Algebra

CO1	Apply foundational concepts of calculus and differential equations to analyze geometric properties of curves, solve first and higher-order ordinary differential equations, and model physical phenomena in science and engineering.
CO2	Apply the principles of linear algebra to solve systems of linear equations, determine eigenvalues and eigenvectors, and analyze real-world problems such as traffic flow.

Course Code: 1BMATC101   Course Name: Differential Calculus And Linear Algebra

CO1	Apply foundational concepts of calculus and differential equations to analyze geometric properties of curves, solve first and higher-order ordinary differential equations, and model physical phenomena in science and engineering.
CO2	Apply the principles of linear algebra to solve systems of linear equations, determine eigenvalues and eigenvectors, and analyze real-world problems such as traffic flow.

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Course Code: 1BMATM101   Course Name: Differential Calculus And Linear Algebra

CO1	Apply foundational concepts of calculus and differential equations to analyze geometric properties of curves, solve first and higher-order ordinary differential equations, and model physical phenomena in science and engineering.
CO2	Apply the principles of linear algebra to solve systems of linear equations, determine eigenvalues and eigenvectors, and analyze real-world problems such as traffic flow.

Course Code: 1BPHYS102   Course Name: Quantum Physics and Applications

CO1	**Explain** the core concepts of quantum mechanics such as matter waves, uncertainty principle, wave functions, and quantization of energy, with relevance to computational applications.
CO2	**Analyze** the behavior of electrons in metals and semiconductors using classical and quantum models to derive key material properties such as conductivity and carrier concentration.
CO3	**Illustrate** the principles and characteristics of superconductivity, including Meissner's effect, critical parameters, and Cooper pair formation, and their relevance in quantum systems.
CO4	**Interpret** the interaction of radiation with matter and the operational principles of photonic devices such as lasers, optical fibers, modulators, and photodetectors.
CO5	**Summarize** the basic concepts of quantum computing including qubits, quantum gates, and quantum logic, and predict simple outcomes using theoretical circuit models.

Course Code: 1BPHEC102   Course Name: Quantum Physics and Electronic Sensors

CO1	**Apply** fundamental principles of quantum mechanics to analyze microscopic physical systems and predict quantized energy states and tunneling phenomena.
CO2	**Illustrate** electrical conduction mechanisms in metals and semiconductors using classical and quantum models, and interpret carrier concentration and Fermi energy calculations.
CO3	**Summarize** superconductivity phenomena including Meissner effect, Cooper pair formation, and Josephson junction behavior for advanced material applications.

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CO4	**Describe** light-matter interaction, laser operations, optical modulators, and photonic devices to illustrate principles of photonics in sensor technologies.
CO5	**Demonstrate** the principles, characteristics, and applications of semiconductor and optical devices, sensors, and transducers used in electronic and photonic systems.

Course Code:1BCHES102   Course Name: Applied Chemistry for Smart Systems (CSE stream)

CO1	Understand the structure, synthesis, and applications of functional materials in memory and display devices.
CO2	Analyze quantum materials, conducting polymers, and their roles in energy and electronic systems.
CO3	Evaluate next-generation energy systems, fuel cells, and green hydrogen technologies.
CO4	Apply concepts of sensors, corrosion control, and green materials in sustainable electronics and e-waste management.
CO5	Determination of analyte by titrimetric or instrumentation method

Course Code: 1BAIA103   Course Name: Introduction to AI and Application

CO1	Understanding the concepts and types of artificial intelligence.
CO2	Illustrate basic machine learning methods for regression, classification and clustering.
CO3	Identify real-world applications across different disciplines.
CO4	Utilize prompt engineering techniques to interact with generative AI tools.
CO5	Outline recent trends in artificial intelligence and machine learning.

Course Code: 1BCEDE103   Course Name: CAED

CO1	**Generate** orthographic projections of points, lines, planes, and solids manually and with computer aided tools.
CO2	**Develop** the lateral surfaces of solids for real-world applications.
CO3	**Draw** isometric views and convert isometric drawings to orthographic views.
CO4	**Create** schematic diagrams of Electrical Systems.

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Course Code: 1BECE105   Course Name: Fundamentals of Electronics & Communication Engineering

CO1	Understand the basic knowledge on construction, operation and characteristics of semiconductor devices.
CO2	Apply the acquired knowledge to construct small scale circuits consisting of semiconductor devices and amplifiers.
CO3	Illustrate the conceptual building blocks for Communication System.
CO4	Develop Logical based knowledge to construct basic digital circuit by make use of basic gate and its function.

Course Code: 1BECEL107   Course Name: Fundamental of Electronics and communication Engineering Lab

CO1	Build combinational logic circuits such as adders, subtractors, and code converters using digital ICs
CO2	Construct basic analog circuits and op-amp configuration for analog signal processing applications.
CO3	Investigate amplitude modulation to explore fundamental analogcommunication techniques.
CO4	Create electronic circuit solutions for open-ended design problems through appropriate component selection, circuit construction, and result interpretation.

Course Code: 1BEIT105   Course Name: Programming in C

CO1	Recall the fundamentals of computing, computer languages, and thestructure of a C program.
CO2	Make use of basic elements of C such as data types, variables, constants, operators, and expressions.
CO3	Apply input/output operations, control statements, and iterative constructs to write simple C programs.
CO4	Demonstrate the use of arrays, strings, functions, and pointers in solving basic computational problems.
CO5	Illustrate the usage of structures, unions, and enumerations in organizing program data.

Course Code: 1BESC104C   Course Name: Introduction to Electronics & Communication Engineering

CO1	Illustrate the fundamental concepts of electronic circuits using rectifiers, voltage regulators and amplifiers.
CO2	Apply the principles of oscillators and operational amplifiers in signal generation and conditioning applications.
CO3	Understand the fundamentals of analog and digital modulation techniques for communication systems.
CO4	Interpret the structure and functionality of embedded systems and digital logic components.
CO5	Apply number system conversions and Boolean algebra to design and implement basic combinational logic circuits.

Course Code: 1BESC104D   Course Name: IME

CO1	Recognize the significance of mechanical engineering principles to solve the problems of social relevance
CO2	Comprehend the working of I.C. engines, power transmission elements and future mobility vehicles.
CO3	Discuss the properties and applications of engineering materials,composite materials and smart materials
CO4	Describe the working principles and applications of various manufacturing processes
CO5	Explain the advances in mechanical engineering

Course Code: 1BPLC105B/205B   Course Name: PYTHON PROGRAMMING

CO1	Develop scripts using primitive language constructs of python.
CO2	Identify the methods to manipulate primitive python data structures.
CO3	Make use of Python standard libraries for programming.
CO4	Build scripts for performing file operations.
CO5	Illustrate the concepts of Object-Oriented Programming as used in Python.

Course Code: 1BPOPL107   Course Name: C Programming Lab

CO1	Apply basic C programming constructs (variables, operators, control statements) to solve simple computational problems.
CO2	Implement programs using arrays and strings to solve simple real-world scenarios.
CO3	Make use of functions and pointers in program development to achieve modularity and data manipulation.
CO4	Demonstrate program using structures, unions, and derived data types with appropriate documentation, including problem definition,design, implementation, and results.

Course Code: 1BESC104A   Course Name: BUILDING SCIENCE AND MECHANICS

CO1	Explain the fundamental concepts of building science, disciplines of civil engineering, construction materials, and structural elements of buildings.
CO2	Evaluate the sustainability aspects of the built environment through appropriate selection of green materials and interpretation of rating systems.
CO3	Apply the principles of force systems and equilibrium to determine support reactions.
CO4	Locate the centroid of simple and composite plane areas using first principles.