DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

2022 SCHEME-COURSE OUTCOME

Upon the completion of the course, the students will be able to,

Subject Code	Course Name	Course Outcome Code	Course Outcome Statement	BTL Level
BMATS101	MATHEMATICS-I FOR CSE STREAM	C111.1	Identify the knowledge of calculus to solve problems related to polar curves and learn the notion of partial differentiation to compute rate of change of multivariate functions.	L3
		C111.2	Choose the solution of linear and nonlinear ordinary differential equations.	L3
		C111.3	Apply modular arithmetic to computer algorithms.	L3
		C111.4	Make use of matrix theory for solving the system of linear equations and compute eigenvalues and eigenvectors.	L3
		C111.5	Utilize the modern mathematical tools namely MATHEMATICA/MATLAB/ PYTHON/ SCILAB.	L3
BPHYS102	APPLIED PHYSICS FOR CSE STREAM	C112.1	Explain essentials of photonics for engineering applications.	L2
		C112.2	Illustrate the principles of quantum mechanics and its applications in quantum computing.	L2
		C112.3	Identify the electrical properties of materials.	L3
		C112.4	Select the essentials of physics for computational aspects like design and data analysis.	L3
		C112.5	Develop physics of animation and statistical physics for computing.	L3
BPOPS103	PRINCIPLES OF PROGRAMMING USING C	C113.1	Explain the basic architecture and functionalities of a Computer.	L2
		C113.2	Apply programming constructs of C language to solve the real-world problems.	L3
		C113.3	Construct user-defined data structures like arrays, structures and pointers in implementing solutions to problems.	L3
		C113.4	Develop Solutions to problems using structured programming constructs such as functions and procedures.	L3
		C113.5	Organize files, using files in C, reading and writing data files.	L3
BESCK104A	INTRODUCTION TO CIVIL ENGINEERING	C114.1	Outline the various disciplines of civil engineering	L2
		C114.2	Summarize the infrastructure requirement for sustainable development	L2
		C114.3	Demonstrate the resultant and equilibrium of force systems.	L2
		C114.4	Identify the centroid of plane and built-up sections.	L3
		C114.5	Develop the moment of inertia of plane and built-up sections.	L3
BESCK104B	Introduction to Electrical Engineering	C115.1	Outline the concepts of various energy sources and Electric circuits.	L2
		C115.2	Apply the basic Electrical laws to solve circuits	L3

		C115.3	Build the construction and operation of various Electrical Machines	L3
		C115.4	Identify suitable Electrical machine for practical implementation.	L3
		C115.5	Select the concepts of electric power transmission and distribution, electricity billing, circuit protective devices and personal safety measures.	L3
BESCK104C	Introduction to Electronics Communication	C116.1	Explain the operations of Power supplies and Amplifiers.	L2
		C116.2	Illustrate the concept of oscillators and operational amplifiers.	L2
		C116.3	Apply Boolean Algebra concepts in combinational and Logic Circuits.	L3
		C116.4	Construct Embedded systems with sensors and interfaces.	L3
		C116.5	Make Use of Analog Communication Schemes and Digital Modulation Schemes.	L3
BESCK104D	Introduction to Mechanical Engineering	C117.1	Explain the concepts of Role of Mechanical Engineering and Energy sources.	L2
		C117.2	Describe the Machine Tool Operations and advanced Manufacturing process.	L2
		C176.3	Illustrate the Working Principle of IC engines and EV vehicles.	L2
		C117.4	Show the Properties of Common Engineering Materials and various Metal Joining Processes.	L2
		C117.5	Choose the Concepts of Mechatronics, Robotics and Automation in IoT.	L3
BESCK104E	INTRODUCTION TO C PROGRAMMING	C118.1	Summarize the basic architecture and functionalities of a computer and also recognize the hardware parts.	L2
		C118.2	Apply programming constructs of C language to solve the real world problem .	L3
		C118.3	Build user-defined data structures like arrays in implementing solutions to problems like searching and sorting .	L3
		C118.4	Develop user-defined data structures like structures, unions and pointers in implementing solutions.	L3
		C118.5	Identify solutions to problems using modular programming constructs using functions.	L3
BETCK105A	Smart Materials and Systems	C119.1	Outline emerging materials for construction.	L2
		C119.2	Summarize the proper prefabricated building component.	L2
		C119.3	Use smart materials and methods in building construction.	L3
		C119.4	Implement BIM in building design .	L3
		C119.5	Model 3-D modeling and manufacture building component	L3
	Green Buildings	C1110.1	Select different building materials for construction.	L3

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BETCK105B		C1110.2	Apply effective environmental friendly building technology.	L3
		C1110.3	Analyze global warming due to different materials in construction.	L3
		C1110.4	Develop buildings for green rating.	L3
		C1110.5	Make Use of alternate source of energy and effective use water.	L3
BETCK105C	Introduction to Nano Technology	C1111.1	Explain the basic concepts of probability, random variables, probability distribution	L2
		C1111.2	Apply suitable probability distribution models for the given scenario.	L3
		C1111.3	Construct the notion of a discrete-time Markov chain and n-step transition probabilities to solve the given problem	L3
		C1111.4	Use statistical methodology and tools in the engineering problem-solving process	L3
		C1111.5	Identify the confidence intervals for the mean of the population and apply the ANOVA test related to engineering problems.	L3
BETCK105D	Introduction to Sustainable Engineering	C1112.1	Outline the basics of sustainable development, sustainable engineering and its role in engineering	L2
		C1112.2	Explain Sustainable Engineering Concepts and Principles in Engineering	L2
		C1112.3	Apply the Principle, and methodology of Life Cycle Assessment Tool to engineering systems.	L3
		C1112.4	Identify integration methods of sustainability to Engineering Design	L3
		C1112.5	Select Integrating Sustainability in Engineering Design:	L3
BETCK105E	Renewable Energy Sources	C1113.1	Describe the environmental aspects of renewable energy resources. In Comparison with various conventional energy systems, their prospects and limitations.	L2
		C1113.2	Explain the use of solar energy and the various components used in the energy production with respect to applications like-heating, cooling, desalination, power generation.	L2
		C1113.3	Illustrate the conversion principles of wind and tidal energy	L2
		C1113.4	Outline the concept of biomass energy resources and green energy.	L2
		C1113.5	Summarize the basic knowledge of ocean thermal energy conversion and hydrogen energy.	L2
BETCK105F	Waste Management	C1114.1	Explain the basics of solid waste management towards sustainable development .	L2
		C1114.2	Summarize the technologies to process waste and dispose the same.	L2
		C1114.3	Develop working models to convert waste to energy	L3
		C1114.4	Identify hazardous waste and manage the hazard .	L3
	Emerging	C1115.1	Classify types of biosensors based on principle .	L2

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BETCK105G	Applications of Biosensors	C1115.2	Contrast different types of transducers based on their physicochemical characteristics.	L3
		C1115.3	Apply bio sensing techniques in health, environment, and agriculture and food industry.	L3
		C1115.4	Use biomaterial and nano materials in biosensors for signal amplification, Detection and Transducer Fabrication	L3
BETCK105H	Introduction to Internet of Things (IOT)	C1116.1	Describe the evolution of IoT, IoT networking components, and addressing strategies in IoT .	L2
		C1116.2	Classify various sensing devices and actuator types.	L2
		C1116.3	Demonstrate the processing in IoT .	L3
		C1116.4	Illustrate Associated IOT Technologies.	L3
		C1116.5	Select architecture of IOT Applications.	L3
BETCK105I	Introduction to Cyber Security	C1117.1	Explain the cybercrime terminologies	L2
		C1117.2	Describe Cyber offenses and Botnets	L2
		C1117.3	Illustrate Tools and Methods used on Cybercrime	L2
		C1117.4	Identify Phishing and Identity Theft	L3
		C1117.5	Select the need of computer forensics	L3
BETCK105J	Introduction to Embedded System	C1118.1	Explain characteristics of Embedded System design	L2
		C1118.2	Summarize the knowledge about basic concepts of circuit emulators, debugging and RTOS	L2
		C1118.3	Analyze embedded system software and hardware requirements	L3
		C1118.4	Develop programming skills in embedded systems for various applications.	L3
		C1118.5	Build basic embedded system for real time applications	L3
BENGK106	Communicative English	C1119.1	Outline the fundamentals of communication skills in engineering profession.	L2
		C1119.2	Relate the nuances of phonetics, intonation and enhance pronunciation skills.	L2
		C1119.3	Rephrase basic English grammar and essentials of language skills as per present requirement.	L2
		C1119.4	Translate all types of English vocabulary and language proficiency.	L2
		C1119.5	Apply the Techniques of Information Transfer through presentation.	L3
BKSKK107	SAMSKRUTIKA KANNADA	C1120.1	Contents related activities (Activity-based discussions)	L2
		C1120.2	Prepare Flowcharts and Handouts	
		C1120.3	Organize group wise discussions Connecting to placement activities	L3
		C1120.4	Quizzes and Discussions, Seminars and assignments.	L3
		C1120.5	Kannada Language and Literature.	L3
BKBKK107	BALAKE KANNADA	C1120.1	Outline the necessity of learning of local language for comfortable life.	L2
		C1120.2	Speak, read and write Kannada language as per requirement.	L2
		C1120.3	Communicate (converse) in Kannada language in their daily	L2

			life with kannada speakers.	
		C1120.4	Listen and understand the Kannada language properly.	L2
		C1120.5	Speak in polite conservation..	L2
BIDTK158	INNOVATION AND DESIGN THINKING	C1121.1	Explain Various Design Process Procedures.	L2
		C1121.2	Develop various design ideas through various techniques.	L2
		C1121.3	Identify Business process management in IT industries.	L2
		C1121.4	Draw technical drawing for Design Ideas.	L2
		C1121.5	Outline IDT process in developing a Prototype.	L2
BMATS201	MATHEMATICS-II FOR CSE STREAM	C121.1	Apply the concept of change of order of integration and variables to evaluate multiple integrals and their usage in computing area and volume.	L3
		C121.2	Illustrate the applications of vector calculus refer to solenoidal, and irrotational vectors. Orthogonal curvilinear coordinates.	L3
		C121.3	Demonstrate the idea of Linear dependence and independence of sets in the vector space, and linear transformation.	L3
		C121.4	Build the knowledge of numerical methods in analyzing the discrete data and solving the physical and engineering problems.	L3
		C121.5	Utilize the modern mathematical tools namely MATHEMATICA/ MATLAB /PYTHON/ SCILAB.	L3
BCHES202	CHEMISTRY FOR CSE STREAM	C122.1	Explain the terms and applications processes involved in scientific and engineering.	L2
		C122.2	Identify the phenomena of chemistry to describe the methods of engineering processes.	L3
		C122.3	Solve the problems in chemistry that are pert in engineering applications.	L3
		C122.4	Apply the basic concepts of chemistry to explain the chemical properties and processes.	L3
		C122.5	Select properties and multi-disciplinary situations processes associated with chemical substances in disciplinary situations.	L3
BCEDK103	COMPUTER AIDED ENGINEERING DRAWING	C123.1	Draw and communicate the objects with definite shape and dimensions	L3
		C123.2	Draw the shape and size of objects through different views	L3
		C123.3	Develop the lateral surfaces of the object	L3
		C123.4	Construct a Drawing views using CAD software.	L3
		C123.5	Identify the interdisciplinary engineering components or systems through its graphical representation.	L3
BPLCK205A	Introduction to Web Programming	C124.1	Explain the historical context and justification for HTML over XHTML.	L2
		C124.2	Develop HTML5 documents and adding various semantic mark up tags.	L3
		C124.3	Organize various attributes, values and types of CSS.	L3
		C124.4	Implement core constructs and event handling mechanisms of JavaScript.	L3
		C125.1	Demonstrate proficiency in handling loops and creation of functions.	L3

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BPLCK205B	Introduction to Python Programming	C125.2	Identify the methods to create and manipulate lists, tuples and dictionaries.	L3
		C125.3	Develop programs for string processing and file organization.	L3
		C125.4	Interpret the concepts of Object-Oriented Programming as used in Python.	L3
BPLCK205C	Basics of JAVA programming	C126.1	Explain the features and object oriented concepts in JAVA programming.	L2
		C126.2	Summarize the working of bitwise operators in JAVA	L2
		C126.3	Develop simple programs based on polymorphism and inheritance.	L3
		C126.4	Illustrate the concepts of importing packages and exception handling mechanism.	L3
BPLCK205D	Introduction to C++ Programming	C127.1	Explain the solution to a problem using object-oriented programming concepts.	L3
		C127.2	Make use of the code with extensible Class types, User-defined operators and function Overloading.	L3
		C127.3	Identify the reusability and extensibility by means of Inheritance and Polymorphism .	L3
		C127.4	Implement the features of C++ including templates, exceptions and file handling for providing programmed solutions to complex problems.	L3
		C127.5	Develop applications for a range of problems using object-oriented programming techniques.	L3
BPWSK206	PROFESSIONAL WRITING SKILLS IN ENGLISH	C128.1	Identify the Common Errors in Writing and Speaking.	L3
		C128.2	Organize Technical writing and Presentation skills..	L3
		C128.3	Read Technical proposals properly and make them to Write good technical reports.	L3
		C128.4	Organize Employment and Workplace communication skills.	L3
		C128.5	Utilize the techniques of Information Transfer through presentation in different level.	L3
BICOK207	INDIAN CONSTITUTION	C129.1	Explain the basic structure of Indian Constitution.	L2
		C129.2	Summarize the Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.	L2
		C129.3	Outline the Union Government, political structure & codes, procedures.	L2
		C129.4	Identify the State Executive & Elections system of India.	L3
		C129.5	Summarize the Amendments and Emergency Provisions, other important provisions given by the constitution.	L2
BSFHK258	SCIENTIFIC FOUNDATIONS OF HEALTH	C129.1	Explain about Health and wellness (and its Beliefs) and its balance for a positive mindset.	L2
		C129.2	Develop healthy lifestyles for good health for a better future.	L2
		C129.3	Build healthy and caring relationships to meet the requirements of good /social/positive life.	L2
		C129.4	Demonstrate the avoiding risks and harmful habits in the campus and outside the campus for the bright future.	L2
		C129.5	Outline the preventive measures and fight against harmful diseases for good health through a positive mindset.	L2
		C231.1	Explain the basic concepts of probability, random variables,	L2

			probability distribution.	
BCS301	MATHEMATICS FOR COMPUTER SCIENCE	C231.2	Apply suitable probability distribution models for the given scenario.	L3
		C231.3	Interpret the notion of a discrete-time Markov chain and n-step transition probabilities to solve thegiven problem.	L3
		C231.4	Make use of statistical methodology and tools in the Engineering problem-solving process.	L3
		C231.5	Compute the confidence intervals for the mean of The population and apply the ANOVA test related to engineering problems.	L3
BCS302	DIGITAL DESIGN AND COMPUTER ORGANIZATION	C232.1	Apply the K–Map techniques to simplify various Boolean expressions.	L3
		C232.2	Develop different types of combinational and sequential circuits along with Verilog programs.	L3
		C232.3	Describe the fundamentals of machine instructions, addressing modes and Processor performance.	L 3
		C232.4	Identify the approaches involved in achieving Communication between processor and I/O devices.	L3
		C232.5	Select internal Organization of Memory and Impact of cache/Pipelining on Processor Performance.	L3
BCS303	OPERATING SYSTEMS	C233.1	Explain the structure and functionality of operating system.	L2
		C233.2	Apply appropriate CPU scheduling algorithms for the given problem.	L3
		C233.3	Develop the various techniques for process synchronization and deadlock handling.	L3
		C233.4	Identify the various techniques for memory management	L3
		C233.5	Organize file and secondary storage management strategies and describe the need for information protection mechanisms.	L3
BCS304	DATA STRUCTURES AND APPLICATIONS	C234.1	Explain different data structures and their applications.	L2
		C234.2	Apply Arrays, Stacks and Queue data structures to solve the given problems.	L3
		C234.3	Make use of the concept of linked list in problem solving.	L3
		C234.4	Develop solutions using trees and graphs tomodel the real-world problem.	L3
		C234.5	Interpret the advanced Data Structures conceptssuch as Hashing Techniques and Optimal Binary Search Trees.	L3
	DATA	C235.1	Analyze various linear and non-linear data structures.	L4
		C235.2	Demonstrate the working nature of different types of data structures and their applications.	L4

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BCSL305	STRUCTURES LABORATORY	C235.3	Use appropriate searching and sorting algorithms for the give scenario	L4
		C235.4	Design the appropriate data structure for solving real world problems using nonlinear data structures	L4
		C235.5	Design the appropriate data structure for solving real world problems using Graph data structures	L4
BCS306A	OBJECT ORIENTED PROGRAMMIN GWITH JAVA	C236.1	Demonstrate proficiency in writing simple programs involving branching and looping structures	L4
		C236.2	Design a class involving data members and methods for the given scenario.	L4
		C236.3	Apply the concepts of inheritance and interfaces ṅsolving real world problems.	L4
		C236.4	Use the concept of packages and exception handling in solving complex problem	L4
		C236.5	Apply concepts of multithreading, auto boxing and enumerations in program development	L4
BSCK307	SOCIAL CONNECT & RESPONSIBILITY	C237.1	Communicate and connect to the surrounding.	L3
		C237.2	Create a responsible connection with the society.	L4
		C237.3	Involve in the community in general in whichthey work.	L4
		C237.4	Notice the needs and problems of the Community and involve them in problem –solving.	L4
		C237.5	Develop among them a sense of social &civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems. Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.	L4
BCS358D	DATA VISUALIZATION WITH PYTHON	C238.1	Demonstrate the use of IDLE or PyCharm IDE to create Python Applications.	L3
		C238.2	Identify Python programming constructs to develop programs for solving real-world problems.	L3
		C238.3	Make use o f Matplotlib for drawing different Plots	L3
		C238.4	Model working with Seaborn, Bokeh for visualization.	L3
		C238.5	Select Plotly for drawing Time Series and Maps.	L3

HOD/CSE

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