



## KLS Vishwanathrao Deshpande Institute of Technology

(Accredited by NAAC with "A" Grade)

(Approved by AICTE, New Delhi. Affiliated to VTU, Belagavi)

(Recognized Under Section 2(f) by UGC, New Delhi)

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### DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING CO'S STATEMENTS FOR THE SCHEME 2022(BATCH:2022-26)

CO's	CO Statement
C101.1	Apply 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.
C101.2	Analyze the solution of linear and nonlinear ordinary differential equations .
C101.3	Get acquainted and to apply modular arithmetic to computer algorithms.
C101.4	Make use of matrix theory for solving for system of linear equations and compute eigenvalues and eigenvectors.
C101.5	Familiarize with modern mathematical tools namely MATHEMATICA/MATLAB/ PYTHON/ SCILAB.
C102.1	Identify the terms and applications processes involved in scientific and engineering
C102.2	Explain the phenomena of chemistry to describe the methods of engineering processes
C102.3	Solve the problems in chemistry that are pertinent in engineering applications
C102.4	Apply the basic concepts of chemistry to explain the chemical properties and processes
C102.5	Analyze properties and multidisciplinary situations
C103.1	Understand the concept of projection, gain visualization skills, projection of points and lines.
C103.2	Analyze the shape and size of the objects through different views.
C103.3	Create an isometric view.
C103.4	Develop the lateral surfaces of the object.
C103.5	Identify the interdisciplinary engineering components or systems through its graphical representation.
C104.1	Apply the concepts of electronic circuits encompassing power supplies, amplifiers.
C104.2	Apply the basic principle of Oscillator, various Oscillator circuits, various Opamp Parameters & circuits.
C104.3	Apply basics of Digital logic including data representation, construct Logic circuits using basic gates.
C104.4	Understand basics of Embedded Systems, technological advances of embedded systems & Sensor Interfacing.
C104.5	Understand fundamentals of Communication Engineering and study various Analog & Digital Modulation schemes.
C105.1	Describe the environmental aspects of renewable energy resources. In Comparison with various conventional energy systems, their prospects and limitations.
C105.2	Describe the use of solar energy and the various components used in the energy production with respect to applications like-heating, cooling, desalination, power generation
C105.3	Understand the conversion principles of wind and tidal energy
C105.4	Understand the concept of biomass energy resources and green energy
C105.5	Acquire the basic knowledge of Ocean thermal energy conversion and hydrogen energy.
C106.1	Understand and apply the Fundamentals of Communication Skills in their communication skills.
C106.2	Identify the nuances of phonetics, intonation and enhance pronunciation skills.
C106.3	To impart basic English grammar and essentials of language skills as per present requirement.
C106.4	Understand and use all types of English vocabulary and language proficiency.
C106.5	Adopt the Techniques of Information Transfer through presentation.
C107.1	To know about the basic structure of Indian Constitution.
C107.2	To know the Fundamental Rights (FR's), DPSP's and Fundamental Duties (FD's) of our constitution.
C107.3	To know about our Union Government, political structure & codes, procedures.
C107.4	To know the State Executive & Elections system of India.

C107.5	To learn the Amendments and Emergency Provisions, other important provisions given by the constitution.
C108.1	To apply the concept of change of order of integration and variables to evaluate multiple integrals and their usage in computing area and volume.
C108.2	To understand the applications of vector calculus refer to solenoidal, and irrotational vectors. Orthogonal curvilinear coordinates.
C108.3	To demonstrate the idea of Linear dependence and independence of sets in the vector space, and linear transformation
C108.4	To apply the knowledge of numerical methods in analysing the discrete data and solving the physical and engineering problems.
C108.5	Get familiarize with modern mathematical tools namely MATHEMATICA/MATLAB/PYTHON/ SCILAB
C109.1	Describe the principles of LASERS and Optical fibers and their relevant applications.
C109.2	Discuss the basic principles of the Quantum Mechanics and its application in Quantum Computing
C109.3	Summarize the essential properties of superconductors and its applications in qubits.
C109.4	Illustrate the application of physics in design and data analysis.
C109.5	Perform experiments to highlight the significance of mechanical properties, elementary electronic circuits, and elucidating the role of quantum mechanics in exploring electrical properties.
C110.1	Elucidate the basic architecture and functionalities of a computer and also recognize the hardware parts.
C110.2	Apply programming constructs of C language to solve the real world problem
C110.3	Explore user-defined data structures like arrays in implementing solutions to problems like searching and sorting
C110.4	Explore user-defined data structures like structures, unions and pointers in implementing solutions
C110.5	Design and Develop Solutions to problems using modular programming constructs using functions
C111.1	Understand the concepts of various energy sources and Electric circuits
C111.2	Apply the basic Electrical laws to solve circuits
C111.3	Discuss the construction and operation of various Electrical Machines
C111.4	Identify suitable Electrical machine for practical implementation
C111.5	Explain the concepts of electric power transmission and distribution, electricity billing, circuit protective devices and personal safety measures
C112.1	Demonstrate proficiency in handling loops and creation of functions.
C112.2	Identify the methods to create and manipulate lists, tuples and dictionaries.
C112.3	Develop programs for string processing and file organization
C112.4	Interpret the concepts of Object-Oriented Programming as used in Python.
C113.1	To Identify the Common Errors in Writing and Speaking of English.
C113.2	To Achieve better Technical writing and Presentation skills for employment.
C113.3	To read Technical proposals properly and make them to write good technical reports
C113.4	To Acquire Employment and Workplace communication skills.
C113.4	To learn about Techniques of Information Transfer through presentation in different level.
C114.1	ವೃತ್ತಿಪರ ಪದವಿ ವಿದ್ಯಾರ್ಥಿಗಳು ಆಗಿರುವುದಿಂದ ದ ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ, ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.
C114.2	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ ಪರಿಚಯಿಸುವುದು.
C114.3	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಮೂಡಿಸುವುದು.
C114.4	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯವನ್ನು ಹಾಗೂ ಅವರಗಳ ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ಪರಿಚಯಿಸುವುದು.
C114.5	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.
C115.1	To explain the concept of design thinking for product and service development
C115.2	To explain the fundamental concept of innovation and design thinking
C115.3	To discuss the methods of implementing design thinking in the real world.
C201.1	Explain the basic concepts of probability, random variables, probability distribution
C201.2	Apply suitable probability distribution models for the given scenario.

C201.3	Apply the notion of a discrete-time Markov chain and n-step transition probabilities to solve the given problem
C201.4	Use statistical methodology and tools in the engineering problem-solving process.
C201.5	Compute the confidence intervals for the mean of the population. Apply the ANOVA test related to engineering problems.
C202.1	Apply the K-Map techniques to simplify various Boolean expressions..
C202.2	Design different types of combinational and sequential circuits along with Verilog programs
C202.3	Describe the fundamentals of machine instructions, addressing modes and Processor performance.
C202.4	Explain the approaches involved in achieving communication between processor and I/O devices.
C202.5	Analyze internal Organization of Memory and Impact of cache/Pipelining on Processor Performance.
C203.1	To explain the structure and functionality of operating system
C203.2	To apply appropriate CPU scheduling algorithms for the given problem.
C203.3	To analyze the various techniques for process synchronization and deadlock handling.
C203.4	To apply the various techniques for memory management.
C203.5	To explain file and secondary storage management strategies.
C203.6	To describe the need for information protection mechanisms.
C204.1	Explain different data structures and their applications.
C204.2	Apply Arrays, Stacks and Queue data structures to solve the given problems.
C204.3	Use the concept of linked list in problem solving.
C204.4	Develop solutions using trees and graphs to model the real-world problem.
C204.5	Explain the advanced Data Structures concepts such as Hashing Techniques and Optimal Binary Search Trees.
C205.1	Analyze various linear and non-linear data structures.
C205.2	Demonstrate the working nature of different types of data structures and their applications.
C205.3	Use appropriate searching and sorting algorithms for the give scenario.
C205.4	Apply the appropriate data structure for solving real world problems.
C206.1	Illustrate the basic concepts of object-oriented programming.
C206.2	Design appropriate classes for the given real world scenario.
C206.3	Apply the knowledge of compile-time / run-time polymorphism to solve the given problem
C206.4	Use the knowledge of inheritance for developing optimized solutions
C206.5	Apply the concepts of templates and exception handling for the given problem
C206.6	Use the concepts of input output streams for file operations.
C207.1	Communicate and connect to the surrounding.
C207.2	Create a responsible connection with the society.
C207.3	Involve in the community in general in which they work.
C207.4	Notice the needs and problems of the community and involve them in problem –solving.
C207.5	Develop among themselves a sense of social & civic responsibility & utilize their knowledge in finding practical solutions to individual and community problems.
C207.6	Develop competence required for group-living and sharing of responsibilities & gain skills in mobilizing community participation to acquire leadership qualities and democratic attitudes.
C208.1	Use advanced functions and productivity tools to assist in developing worksheets.
C208.2	Manipulate data lists using Outline and PivotTables
C208.3	Use Consolidation to summarise and report results from multiple worksheets.
C208.4	Apply Macros and Autofilter to solve the given real world scenario.
C209.1	To apply asymptotic notational method to analyze the performance of the algorithms in terms of time complexity.
C209.2	To demonstrate divide & conquer, decrease & conquer approaches to solve computational problems.
C209.3	To make use of transform & conquer and dynamic programming design approaches to solve the given real world or complex computational problems.

C209.4	To apply greedy and input enhancement methods to solve graph & string based computational problems.
C209.5	To analyze various classes (P, NP and NP Complete) of problems
C209.6	To illustrate backtracking, branch and bound and approximation methods.
C210.1	Explain the ARM Architectural features and Instructions.
C210.2	Develop programs using ARM instruction set for an ARM Microcontroller.
C210.3	Explain C-Compiler Optimizations and portability issues in ARM Microcontroller
C210.4	Apply the concepts of Exceptions and Interrupt handling mechanisms in developing applications.
C210.5	Demonstrate the role of Cache management and Firmware in Microcontrollers.
C211.1	Describe the basic elements of a relational database management system
C211.2	Design entity relationship for the given scenario.
C211.3	Apply various Structured Query Language (SQL) statements for database manipulation.
C211.4	Analyse various normalization forms for the given application.
C211.5	Develop database applications for the given real world problem.
C211.6	Understand the concepts related to NoSQL databases
C212.1	Develop programs to solve computational problems using suitable algorithm design strategy.
C212.2	Compare algorithm design strategies by developing equivalent programs and observing running times for analysis (Empirical).
C212.3	Make use of suitable integrated development tools to develop programs
C212.4	Choose appropriate algorithm design techniques to develop solution to the computational and complex problems
C212.5	Demonstrate and present the development of program, its execution and running time(s) and record the results/inferences
C213.1	Apply concepts of logical reasoning and mathematical proof techniques in proving theorems and statements.
C213.2	Demonstrate the application of discrete structures in different fields of computer science.
C213.3	Apply the basic concepts of relations, functions and partially ordered sets for computer representations.
C213.4	Solve problems involving recurrence relations and generating functions.
C213.5	Illustrate the fundamental principles of Algebraic structures with the problems related to computer science & engineering
C214.1	Apply basic LaTeX command to develop simple document
C214.2	Develop LaTeX script to present the tables and figures in the document
C214.3	Illustrate LaTeX script to present theorems and mathematical equations in the document
C214.4	Develop programs to generate the complete report with citations and a bibliography
C214.5	Illustrate the use of Tikz and algorithm libraries to design graphics and algorithms in the document.
C215.1	Elucidate the basic biological concepts via relevant industrial applications and case studies.
C215.2	Evaluate the principles of design and development, for exploring novel bioengineering projects.
C215.3	Corroborate the concepts of biomimetics for specific requirements.
C215.4	Think critically towards exploring innovative biobased solutions for socially relevant problems.
C216.1	They would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind
C216.2	They would have better critical ability.
C216.3	They would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society)..
C216.4	It is hoped that they would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.

  
**HOD**  
 Computer Science & Engineering,  
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