

“Education for knowledge, science and culture” - Shikshanmaharshi Dr. Bapuji Salunkhe
Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR
B. Sc. Part – II (Computer science Entire)
CBCS Syllabus with effect from June, 2022
Semester: III

Course Title: Linear Algebra & Numerical Methods (GEC-1300 C)

After completion of this course students will be able :

CO1	To learn about matrices and solutions of system of linear equations
CO2	To learn different concepts related to vector spaces and linear transformations
CO3	To use appropriate numerical methods for solving algebraic and transcendental equations
CO4	To study different interpolation methods for given tabulated data, use numerical methods for solving integration and ordinary differential equations

Course Title: Instrumentation and Computer Organization
GEC-1301 C

After completion of this course students will be able:

CO1	To describe the working principle, selection criteria and applications of various Transducers used in instrumentation systems.
CO2	To gain knowledge about different type of signal conditioning circuits, data converters and Understand construction, working principle of different types of digital instruments.
CO3	To explain the function of each element of a memory hierarchy and Learn about various data transfer techniques in digital computer and the I/O interfaces.
CO4	To understand the basics of hardwired and micro-programmed control of the CPU, pipelined architectures and architecture of 8086 microprocessor.

Course Title: Introduction to RDBMS using MySQL and Object Oriented Programming
Using C++

CC-CS-1304C

After completion of this course students will be able:

CO1	To draw DFD, ERD, create relational database using normalization and to understand MySQL basics, classify DDL, DML, DCL commands and data constraints, implement SQL operators and functions, build C++ program structure, memory management operators, this pointer and reference variable.
CO2	To implement programs in C++ using control structures, inline function, default argument, function overloading and explain Object Oriented Programming Concepts. , explain class, access modifiers and define member functions of a class, static data members and member function, develop the programs using array of object.
CO3	To explain friend function and friend class, define a constructor, destructor and explain features of constructor, destructor and types of constructor, explain rules for operator overloading and implement programs using unary and binary operator overloading
CO4	To explain inheritance and define Base class and derived class and implement programs using types of inheritance, define polymorphism and explain types of polymorphism and implement programs using virtual function and explain concept of pure virtual function and abstract class.



Semester – IV
Course Title: Computational Geometry & Operation Research
GEC 1300D

After learning the course the students should be able :

CO1	To study different types of two and three dimensional transformations
CO2	To learn different generation techniques of curves
CO3	To formulate and apply suitable methods to solve linear programming problems
CO4	To use different methods for solving transportation and assignment problems, study different techniques for solving games

Course Title: Programming, Interfacing and Raspberry Pi
GEC-1301 D

After completion of this course students will be able:

CO1	To understand the architecture of 8051 microcontroller and knowledge about assembly Language programs of 8051.
CO2	To build systems using microcontroller for real time applications.
CO3	To understand the working of Raspberry Pi, its features and how various components can be used with Pi.
CO4	To understand Raspbian OS, Python programming and apply creative thinking skills in the design of practical solutions to specific case studies and projects.

**Course Title: Introduction to Data Structure Using C++
and Cyber Security Essentials**
CC-CS-1304D

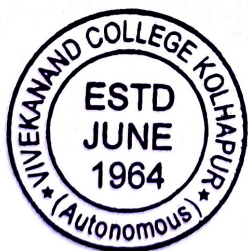
After completion of this course students will be able:

CO1	To define Data Type, Data structure, Data object and explain Abstract Data Type, Linear and nonlinear data structures, explain Algorithm efficiency, array, types of array and sparse matrices
CO2	To define Stack and demonstrate operations and static implementation of stack, explain applications of stack, define queue and demonstrate operations and static implementation of queue and explain types of queues, explain Linked list and types of linked list
CO3	To implement Stack and Queue using Linked list, define Tree and explain tree terminologies and tree traversal, implement programs using searching and sorting techniques, explain working of computer network and importance of cyber security
CO4	To understand different security threats and information security management explain access controls methods and wireless network security, understand cyber security laws and importance of security audit.



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B.Sc.-II SEM-III	Course name - Skill Enhancement course-I Introduction to SQLite
CO1:	Understand the basics of SQLite , able to create, open, drop database files.
CO2:	Able to create tables, add and edit data using different constraints, operators, understand data selection and retrieval using clauses etc.
CO3:	Able to process data using different SQLite functions.
CO4:	Able to retrieve data using joins and have overview of Index, Trigger and views.
B.Sc.-II SEM-IV	Course name - Skill Enhancement course-II Python Programming
CO1	To learn how to install Python, start the Python shell and to define the structure and components of a Python program.
CO2	To learn to perform basic calculations, print text on the screen and perform simple control flow operations using if statements and for loops
CO3	To learn how to use lists, tuples, and dictionaries in Python programs.
CO4	To learn how to reuse code with functions



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