



# St. Clare College

Affiliated to Bangalore University | A Claretian Missionary Institution

NURTURING VALUES AND EXCELLENCE

## DEPARTMENT OF SCIENCES

### I SEMESTER BCA

### PROBLEM SOLVING USING C

**OUTCOMES:** Students will be able to

**CO1:** Describes basic programming techniques and elements.

**CO2:** Explains the programming techniques.

**CO3:** Explains programming techniques.

**CO4:** Describes pointers, structures, and other derived data types.

**CO5:** Explains file management techniques.

## DISCRETE MATHEMATICS

**OUTCOMES:** Students will be able to

**CO1:** Describes Set, Relation, function, and mathematical logic

**CO2:** Explains the fundamental concepts of matrix and various operations and application of matrix

**CO3:** Explains the concept of the logarithm, permutation, and combination

**CO4:** Describes the concept of group and its various operation

**CO5:** Explains the basic concept of analytical Geometry in two Dimensions



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## DIGITAL ELECTRONICS

**OUTCOMES:** Students will be able to

**CO1:** Understand the basic concepts of OOP and features of OOP

**CO2:** Clarify the concepts of objects and classes

**CO3:** Understand the concept of Operator overloading and Inheritance

**CO4:** Understand the logic of virtual functions and templates

**CO5:** Understand the concept of files and streams

## II SEMESTER BCA

### DATABASE MANAGEMENT SYSTEM

**OUTCOMES:** Students will be able to

**CO1:** Describes the basics of the database management system.

**CO2:** Explains the concepts of diagrammatic representation

**CO3:** Explains programming techniques

**CO4:** Describes SQL and PL/SQL.

**CO5:** Explains transaction processing concepts and interleaving techniques, locks, etc.



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## NUMERICAL AND STATISTICAL METHOD

**OUTCOMES:** Students will be able to

**CO1:** Understand Floating-point representations, Roots of equations-locating roots of  $f(x)=0$

**CO2:** Interpolation and numerical differentiation-polynomial interpolation

**CO3:** Understand the System of linear equations-Gaussian elimination, Ordinary differential equations

**CO4:** Understand Basics concepts and definition of statistics, Probability

**CO5:** Understand Random variables and Expectations, Probability Distribution

## DATA STRUCTURE USING C

**OUTCOMES:** Students will be able to

**CO1:** Understand the introduction and overview of programming.

**CO2:** Understand and apply the array representation.

**CO3:** Understand and apply the concept of Linked list.

**CO4:** Understand and describe the implementation of the stack.

**CO5:** Describe and apply the concept of graph and tree.



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## III SEMESTER BCA

### OPERATING SYSTEM

**OUTCOMES:** Students will be able to

**CO1:** Describes the internal architecture Operating System.

**CO2:** Explains the concepts of Process Synchronization and deadlock.

**CO3:** Explains memory management system.

**CO4:** Describes file and disk management.

**CO5:** Explains the protection and security of the system.

## FINANCIAL ACCOUNTING AND MANAGEMENT

**OUTCOMES:** Students will be able to

**CO1:** Understand the introduction and overview of accounting.

**CO2:** Understand and Apply the financial accounting process.

**CO3:** Understand and apply the accounting for the bill of exchange.

**CO4:** Understand and analyse the preparation of final accounting.

**CO5:** Describe and apply the concept of graph and tree.



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## OBJECT-ORIENTED PROGRAMMING USING C++

**OUTCOMES:** Students will be able to

**CO1:** Understand the basic concepts of OOP and features of OOP

**CO2:** Clarify the concepts of objects and classes

**CO3:** Understand the concept of Operator overloading and Inheritance

**CO4:** Understand the logic of virtual functions and templates

**CO5:** Understand the concept of files and streams

## IV SEMESTER BCA

### OPERATION RESEARCH

**OUTCOMES:** Students will be able to

**CO1:** Explain Linear Programming Problems

**CO2:** Understand transportation problem

**CO3:** Understand Assignment Problem

**CO4:** Describe Network Analysis

**CO5:** Understand Theory of Games



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## UNIX SHELL PROGRAMMING

**OUTCOMES:** Students will be able to

**CO1:** Understands the features and architecture of UNIX with an introduction to process management.

**CO2:** Explains the secondary storage management, special tools, and utilities.

**CO3:** Understands the concept of shell programming.

**CO4:** Understands conditional control structures in shell programming.

**CO5:** Understands UNIX system communication and system administration.

## VISUAL PROGRAMMING

**OUTCOMES:** Students will be able to

**CO1:** Describes basic programming techniques and elements.

**CO2:** Explains the programming techniques.

**CO3:** Explains programming techniques

**CO4:** Describes programming using VC++.

**CO5:** Explains programming techniques using VC++.



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## V SEMESTER BCA

### MICROPROCESSOR AND ASSEMBLY LANGUAGE

**OUTCOMES:** Students will be able to

**CO1:** Describes the internal architecture of the 8085 microprocessor and its operation.

**CO2:** Explains the concepts of assembly-level programs and various programming statements.

**CO3:** Explains programming techniques

**CO4:** Describes the memory interfacing with 8085 microprocessors.

**CO5:** Explains I/O interfacing of peripherals with 8085 microprocessors.

## SOFTWARE ENGINEERING

**OUTCOMES:** Students will be able to

**CO1:** Explain Software Products and Software process, Process models

**CO2:** Software Prototyping and Software Design

**CO3:** Understand Object-Oriented & function-oriented design

**CO4:** Describe Software Reliability and reusability

**CO5:** Understand Software Verification and Validation.



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## JAVA PROGRAMMING

**OUTCOMES:** Students will be able to

**CO1:** Understand the basic concepts of the Internet and the history of Java

**CO2:** Clarify the concepts of arrays, classes, strings, and vectors

**CO3:** Understand the concept of Interface and Packages

**CO4:** Understand the logic of Exceptions and Applet

**CO5:** Understand the concept of Graphics programming

## COMPUTER ARCHITECTURE

**OUTCOMES:** Students will be able to

**CO1:** Explain the digital logic circuits

**CO2:** Apply the data representation

**CO3:** Understand the basic computer organisation and design

**CO4:** Describe the central processor organization

**CO5:** Understand the input-output organisation





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## DATA COMMUNICATIONS AND NETWORKS

**OUTCOMES:** Students will be able to

**CO1:** Understands basic concepts of networking and digital transmission

**CO2:** Explains the properties of media and various transmission systems

**CO3:** Understands the concept of Peer-to-Peer protocols and service models

**CO4:** Describes Local Area Networks and Medium Access Control Protocols

**CO5:** Understand LAN standards, wireless LANs, packet network topology with an overview of routing and congestion in packet.

## VI SEMESTER BCA

### SYSTEM PROGRAMMING

**OUTCOMES:** Students will be able to

**CO1:** Describes the basics of system software.

**CO2:** Explains the concepts of Assembler.

**CO3:** Explains the concepts of Macro.

**CO4:** Explains the concepts of the loader.

**CO5:** Explains the concepts of Compiler.



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## THEORY OF COMPUTATION

**OUTCOMES:** Students will be able to

**CO1:** Explain the Introduction to finite automata

**CO2:** Understand and Apply the Regular expression

**CO3:** Understand and describe the Context-free grammar

**CO4:** Understand and explain the Deterministic Pushdown automata

**CO5:** Understand the Turing Machine

## WEB PROGRAMMING

**OUTCOMES:** Students will be able to

**CO1:** Understand the basic concepts of Internet and web browser

**CO2:** Clarify the HTML & XHTML

**CO3:** Understand the concept of Javascript

**CO4:** Understand the principle of the DOM model

**CO5:** Understand the concept of DDL

## CRYPTOGRAPHY & NETWORK SECURITY

**OUTCOMES:** Students will be able to

**CO1:** Understand the Principles of security goals and attacks

**CO2:** Clarify the various encryption algorithms and examples

**CO3:** Understand the cipher's techniques

**CO4:** Understand the principle of Hash functions and digital signature

**CO5:** Understand the security at the application layer and network layer.