



# PANYA TECHNOLOGIES

Technology to Live...

#184, Hennur Cross, Near: Indian Academy College, Kalyan Nagar, Bangalore-560043

Mobile No: 9741264243 Phone No: 080-42109791 [www.panyatech.com](http://www.panyatech.com)

## C PROGRAMMING

Duration: 45 Hours

- ✚ Introduction
- ✚ Declaring Variables
- ✚ Preprocessor Statements
- ✚ Arithmetic Operators
- ✚ Programming Style
- ✚ Keyboard Input
- ✚ Relational Operators
- ✚ For and while loops
- ✚ If, if else, relational operators
- ✚ Switch/case
- ✚ String and character handling
- ✚ Data validation examples
- ✚ Conditional expression operator
- ✚ Arrays
- ✚ Functions
- ✚ Additional assignment operator
- ✚ Sample programs so far
- ✚ Handling user input and Validation
- ✚ Formatters for printf() and scanf(), bit operations
- ✚ Structures
- ✚ Data conversion with itoa() and atoi()
- ✚ Files
- ✚ Pointers
- ✚ Linked Lists
- ✚ Dynamic Memory Allocation
- ✚ Preprocessor Statements, Macros, Conditional Compilation, typedef
- ✚ Enumerated Data Types
- ✚ Unions
- ✚ Register based variables, null statements and strings
- ✚ Command Line Arguments
- ✚ Pointers to functions
- ✚ Formatters for characters and strings
- ✚ System Calls
- ✚ Suggested solutions to all problems
- ✚ Advanced C, hardware accessing, longjump/ctrl break



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## DATA STRUCTURES, ALGORITHM DESIGN AND C CONCEPTS

Duration: 48 Hours

**BASIC CONCEPTS:** Pointers and Dynamic Memory Allocation, Algorithm Specification, Data Abstraction, Performance Analysis, Performance and Measurement

**ARRAYS and STRUCTURES:** Arrays, Dynamically Allocated Arrays, Structures and Unions, Polynomials, Sparse Matrices, Representation of Multidimensional Arrays

**STACKS AND QUEUES:** Stacks, Stacks Using Dynamic Arrays, Queues, Circular Queues Using Dynamic Arrays, Evaluation of Expressions, Multiple Stacks and Queues

**LINKED LISTS:** Singly Linked lists and Chains, Representing Chains in C, Linked Stacks and Queues, Polynomials, Additional List operations, Sparse Matrices, Doubly Linked Lists

**TREES – 1:** Introduction, Binary Trees, Binary Tree Traversals, Threaded Binary Trees, Heaps. **TREES – 2: GRAPHS:** Binary Search Trees, Selection Trees, Forests, Representation of Disjoint Sets, Counting Binary Trees, the Graph Abstract Data Type.

**PRIORITY QUEUES:** Single- and Double-Ended Priority Queues, Leftist, Binomial Heaps, Fibonacci Heaps, Pairing Heaps.

**INTRODUCTION TO ALGORITHM DESIGN:** Notion of Algorithm, Review of Asymptotic Notations, Mathematical Analysis of Non-Recursive and Recursive Algorithms

**Brute Force Approaches:** Introduction, Selection Sort and Bubble Sort, Sequential Search and Brute Force String Matching.



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## C++ Programming

- ✦ Introduction to C++
- ✦ Creating a project
- ✦ Writing, compiling and running a program
- ✦ Variables and data types
- ✦ Expressions
- ✦ Constants
- ✦ Operators
- ✦ Type conversions
- ✦ Looping constructs: while, do...while, for loops
- ✦ If...else statements
- ✦ Switch/case construct
- ✦ Functions
- ✦ Passing arguments
- ✦ Function prototyping
- ✦ Default argument initializes
- ✦ Inline functions
- ✦ Arrays
- ✦ Array initialization
- ✦ Multi-dimensional arrays
- ✦ Character arrays
- ✦ Working with character strings
- ✦ STORAGE CLASSES
- ✦ Global variables
- ✦ Pointers
- ✦ Pointer and arrays
- ✦ Pointers to character strings
- ✦ Arrays of pointers
- ✦ Memory slicing
- ✦ Pointers to functions
- ✦ Enumeration types
- ✦ C++ classes
- ✦ Data members and member functions
- ✦ Creating objects
- ✦ The new and delete operators
- ✦ Friends to a class
- ✦ Class initialization
- ✦ Reference types
- ✦ Reference type arguments
- ✦ Function overloading
- ✦ Operator overloading
- ✦ Copy constructor
- ✦ Assignment operator
- ✦ Template classes
- ✦ Static class members
- ✦ File streams
- ✦ Inheritance
- ✦ Base classes and derived classes
- ✦ Inherited member access
- ✦ Base class initialization
- ✦ Protected members of a class
- ✦ Virtual functions
- ✦ Virtual destructors
- ✦ Virtual base classes
- ✦ Virtual base class member access
- ✦ Constructor and destructor ordering
- ✦ Exception handling
- ✦ try...throw...catch block
- ✦ Nested catch handlers



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## CORE JAVA

Duration: 50 Hours

- ✚ Introduction
- ✚ Flow Control
- ✚ Object Oriented Programming
- ✚ Method overloading
- ✚ Inheritance
- ✚ Interface
- ✚ Abstract class vs. Interface
- ✚ Access Specifiers
- ✚ Packages
- ✚ Inner classes
- ✚ Garbage Collection
- ✚ Exception handling and assertions
- ✚ Collections
- ✚ Generics, Enums, Covariant return types, Auto Boxing, Annotations
- ✚ Internationalization, Locale, Formatting text and dates
- ✚ Multi-Threading
- ✚ JDBC
- ✚ Connection pooling
- ✚ MINI PROJECT



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## MICROSOFT .NET

Duration: 100 Hours

- ✦ .Net overview
- ✦ C#-the language
- ✦ Objects oriented programming
- ✦ Memory management
- ✦ Exception handling
- ✦ GUI application development
- ✦ Windows control library
- ✦ Delegates
- ✦ Data access with ado.net
- ✦ Multi-threading
- ✦ Assemblies
- ✦ Windows services
- ✦ Microsoft .net overview
- ✦ Introduction to vb.net
- ✦ Introduction to visual studio .net vs 6.0 vs. Vs .net
- ✦ Object oriented programming
- ✦ GUI application development
- ✦ Windows control library
- ✦ Delegates
- ✦ Assemblies
- ✦ Data access with ado.net
- ✦ Multi-threading
- ✦ Windows services
- ✦ Web technologies
- ✦ Asp.net
- ✦ Controls
- ✦ Validation control
- ✦ State management
- ✦ Caching
- ✦ Asp.net configuration
- ✦ Ado.net
- ✦ Asp.net tracing
- ✦ SECURITY IN ASP.NET
- ✦ XMLPROGRAMMING
- ✦ WEB SERVICES
- ✦ CRYSTAL REPORTS
- ✦ SSRS (SQL Server Reporting Services)
- ✦ MS-Reports
- ✦ LINQ: NET Language-Integrated Query
- ✦ WCF: Windows Communication Foundation

- ✚ WPF: Windows Presentation Foundation
- ✚ EXCEPTION HANDLING
- ✚ GUI APPLICATION DEVELOPMENT
- ✚ WINDOWS CONTROL LIBRARY
- ✚ DELEGATES
- ✚ DATA ACCESS WITH ADO.NET
- ✚ MULTI THREADING
- ✚ ASSEMBLIES
- ✚ WINDOWS SERVICES
- ✚ MICROSOFT .NET OVERVIEW
- ✚ INTRODUCTION TO VB.NET
- ✚ INTRODUCTION TO VISUAL STUDIO .NET VS 6.0 VS. VS .NET
- ✚ OBJECT ORIENTED PROGRAMMING
- ✚ GUI APPLICATION DEVELOPMENT
- ✚ WINDOWS CONTROL LIBRARY
- ✚ DELEGATES
- ✚ ASSEMBLIES
- ✚ DATA ACCESS WITH ADO.NET
- ✚ MULTI-THREADING
- ✚ WINDOWS SERVICES
- ✚ WEB TECHNOLOGIES
- ✚ ASP.NET
- ✚ CONTROLS
- ✚ VALIDATION CONTROL
- ✚ STATE MANAGEMENT
- ✚ CACHING
- ✚ ASP.NET CONFIGURATION
- ✚ ADO.NET
- ✚ ASP.NET TRACING
- ✚ SECURITY IN ASP.NET
- ✚ XMLPROGRAMMING
- ✚ WEB SERVICES
- ✚ CRYSTAL
- ✚ REPORTS
- ✚ SSRS (SQL SERVER REPORTING SERVICES)
- ✚ MS-REPORTSLINQ: NET LANGUAGE-INTEGRATED QUERY
- ✚ WCF: WINDOWS COMMUNICATION FOUNDATION
- ✚ WPF: WINDOWS PRESENTATION FOUNDATION



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## LINUX SYSTEM PROGRAMMING

Duration: 40 Hours

### Introduction and Essential Concepts

System Programming, APIs and ABIs, Standards, Concepts of Linux Programming, Getting Started with System Programming, File I/O, Opening Files, Reading via `read()`, Writing with `write()`, Synchronized I/O, Direct I/O, Closing Files, Seeking with `lseek()`, Positional Reads and Writes, Truncating Files, Multiplexed I/O, Kernel Internals, Buffered I/O User-Buffered I/O, Standard I/O, Opening Files, Opening a Stream via File Descriptor, Closing Streams, Reading from a Stream, Writing to a Stream, Sample Program Using Buffered I/O, Seeking a Stream, Flushing a Stream, Errors and End-of-File, Obtaining the Associated File Descriptor, Controlling the Buffering, Thread Safety, Critiques of Standard I/O

**Advanced File I/O:** Scatter/Gather I/O, The Event Poll Interface, Mapping Files into Memory, Advice for Normal File I/O, Synchronized, Synchronous, and Asynchronous Operations, I/O Schedulers and I/O Performance

**Process Management:** The Process ID, Running a New Process, Terminating a Process, Waiting for Terminated Child Processes, Users and Groups, Sessions and Process Groups and Daemons

**Advanced Process Management:** Process Scheduling, Yielding the Processor, Process Priorities, Processor Affinity, Real-Time Systems Resource Limits

File and Directory Management: Files and Their Metadata, Directories, Links, Copying and Moving Files, Device Nodes, Out-of-Band Communication, Monitoring, File Events

**Memory Management:** The Process Address Space, Allocating Dynamic Memory, Managing the Data Segment, Anonymous Memory Mappings, Advanced Memory Allocation, Debugging Memory Allocations Stack-Based Allocations, Choosing a Memory Allocation Mechanism, Manipulating Memory, Locking Memory, Opportunistic Allocation

**Signals:** Signal Concepts, Basic Signal Management, Sending a Signal, Reentrancy, Signal Sets, Blocking Signals Advanced Signal Management, Sending a Signal with a Payload