

C & C++ Programming Course

2 Months | 3 Days/Week | 2 Hours/Session | 24 Sessions | Live Online

From absolute zero to confident C & modern C++ — pointers, memory, OOP, STL and multithreading. C portion modelled on how IIT Kanpur teaches computing fundamentals to first-year students — and goes beyond it into C++, threading and industry practice. Live coding • assignments • doubt support.

MONTH 1 — The C Language: Foundations to Memory

WEEK 1

Getting Started with C

- Session 1** How computers run code • setup (VS Code + GCC) • first program • variables & data types
- Session 2** Input/output (printf, scanf) • operators • typecasting • practice problems
- Session 3** Decisions: if / else if / else • switch • logical operators • live problems

WEEK 2

Loops, Functions & Recursion

- Session 4** Loops: for, while, do-while • break & continue • pattern printing
- Session 5** Functions • parameters & return • scope • modular thinking
- Session 6** Recursion — thinking in self-reference • factorial, Fibonacci, classic problems

WEEK 3

Arrays & Strings

- Session 7** 1-D arrays • traversal, insert, search • practice set
- Session 8** Strings in C • string.h • common string problems
- Session 9** 2-D arrays & matrices • matrix operations • mini project: result sheet

WEEK 4

Pointers & Structures — The Real C

- Session 10** Pointers I: addresses, dereferencing, pointer arithmetic — with memory diagrams
- Session 11** Pointers II: pointers & arrays • pointers to functions • common pitfalls
- Session 12** Structures • nested structures • arrays of structures • mini project: student records

WEEK 5

Memory & Files

- Session 13** Dynamic memory: malloc, calloc, free • memory leaks • debugging like industry (GDB intro)
- Session 14** File handling: read/write text & binary files • project: file-based records app
- Session 15** Searching & sorting (linear, binary, bubble, selection) • C wrap-up + assessment

C & C++ Programming Course

Month 2 | Modern C++, OOP, STL & Multithreading

MONTH 2 — C++: Object-Oriented Programming to Threads

WEEK 6

From C to C++

- Session 16** C++ transition: cin/cout, references, function overloading, default arguments
Session 17 Classes & objects • encapsulation • access specifiers • your first class
Session 18 Constructors & destructors • this pointer • static members • practice

WEEK 7

OOP Power & the STL

- Session 19** Inheritance • polymorphism • virtual functions • real-world OOP design
Session 20 STL: vector, string, pair, map, set • iterators • sort & algorithms
Session 21 Exception handling • intro to templates • problem-solving with STL

WEEK 8

Multithreading & Final Project

- Session 22** Multithreading I: processes vs threads • std::thread • how servers & games use threads
Session 23 Multithreading II: race conditions • mutex & locks • a multithreaded mini app
Session 24 FINAL PROJECT showcase • resume & interview guidance • GATE problems • road ahead

Industry Focus & Career Guidance

- Where C/C++ runs the world: embedded systems, automotive, gaming engines, OS, IoT, finance (HFT)
- Industry practices woven in: clean code habits, debugging with GDB, publishing projects on GitHub
- Dedicated career guidance: resume & GitHub portfolio review, core-company C/C++ interview questions
- GATE CSE alignment: exam-style problem practice at the end of every module
- Roadmap session: core companies vs software roles vs higher studies — how to choose your path

What Students Receive

- All session recordings (1 year access) + slides and code files
- Weekly graded assignments with solutions • WhatsApp doubt support anytime
- Certificate of Completion (Rising Coder)
- Final project for your GitHub • GATE & placement problem practice throughout

Fee: Rs. 2,499 (complete 2-month course)

Batch starts: September | 3 sessions/week, 2 hours each | Live online + recordings

Curriculum designed by: Sujeet Chavhan

PhD Research Scholar, CSE Department, IIT Kanpur | GATE CSE 2018 - AIR 352 | Founder, Rising Coder