Jaipur Engineers
Your One-Stop IT & Staffing Ecosystem

PROGRAMMING FOUNDATIONS

C Programming

Build logic with C, work with memory and write a console program that saves records.



WRITE

Syntax and control flow

BUILD

Functions and data

RUN

Files, tests and a mini-project

COURSE FEE

Mansarovar, Jaipur

₹4,000

Eight-module syllabus

Build on each topic through short exercises before combining them in a complete C program.

01 C setup and syntax

Toolchain, program structure, main(), compilation and console output.

02 Variables and operators

Types, constants, expressions, conversions and input/output.

03 Conditions and loops

if/else, switch, for, while, do-while, break and continue.

04 Functions and recursion

Declarations, parameters, return values, scope and base cases.

05 Arrays and strings

One- and two-dimensional arrays, null terminators and bounded input.

06 Pointers and memory

Addresses, dereferencing, arrays and dynamic allocation basics.

07 Structures and unions

Group fields with struct and compare storage with union.

08 Files and mini-project

Read and write records, test edge cases and explain a project.

Write, compile and run C

Start with program structure, then use data, conditions and loops to produce useful output.

Source

hello.c

Compiler

Check and build

Executable

Run the program

count.c

```c
#include <stdio.h>
int main(void) {
    for (int n = 1; n <= 3; ++n) {
        printf("%d\n", n);
    }
    return 0;
}
```

Core topics

Variables and data types, operators and expressions, console input/output, if/else, switch and loops.

TRY IT

Write a menu-driven calculator and check invalid input before performing a calculation.

Organise code and data

Split a program into functions and use arrays and strings to process a series of inputs.

01

Functions and recursion

Use prototypes, arguments, return values and local scope. Trace recursion with a clear base case.

02

Arrays and searching

Traverse one- and two-dimensional arrays and practise totals, linear search and simple sorting.

03

Strings and safe input

Work with character arrays, null termination, bounded input and standard string functions.

TRY IT

Put marks in an array and call separate functions to find the maximum and calculate the average.

Read a pointer step by step

Variables hold values. A pointer can store the address of one of those variables.

```
int score = 12;

int *p = &score;

printf("%d\n", *p);
```

OUTPUT 12

Addresses and dereferencing

Use & to obtain an address and * to read or update the value at a valid address.

Arrays and memory ownership

Explore pointer–array relationships, bounds, malloc and free. Check for allocation failure.

TRY IT

Pass a pointer to a function that updates a value. Describe which variable changed and why.

Store records and test them

Group related fields, save data and make sure a program can handle missing or invalid input.

MODEL

Structures and unions

Create records with struct, access members and compare how a union shares storage.

SAVE

File input and output

Open, read, write and close text files. Check errors before using the result.

CHECK

Debugging and tests

Use compiler warnings, breakpoints and repeatable tests for normal and boundary cases.

TRY IT

Save an array of inventory records to a text file and verify a fresh run can load the same data.

Build an Inventory Tracker

Create a menu-driven console app that stores item records and reports low stock.

inventory.c / console menu

```
01    Add an item
02    Find an item by ID
03    Update stock quantity
04    Show low-stock items
05    Save and exit
```

Build and verify

Use structures for records, functions for menu actions and a text file for storage. Test duplicate IDs, invalid quantities and reload after saving.

MORE PRACTICE

Other practice ideas include a student marks report and a menu-driven calculator.

Ask about the next C batch

Contact Jaipur Engineers for class timings, learning options and admission details.

C PROGRAMMING COURSE FEE

₹4,000

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View the C Programming course

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C Programming

Course content

MODULES 01–02

01

Lessons & practice

- Compiler setup
- Main
- Types
- Console I/O

HANDS-ON

Compile a C console program and print parsed values with the correct format specifiers.

02

Lessons & practice

- Operators
- Conditions
- Loops

HANDS-ON

Build a menu-driven calculator that validates input before each operation.

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MODULES 03–04

03

Lessons & practice

- Functions
- Prototypes
- Scope
- Recursion

HANDS-ON

Split total and average calculations into functions and trace a recursive base case.

04

Lessons & practice

- Arrays
- Strings
- Bounds checks

HANDS-ON

Find a maximum in a two-dimensional marks table and test bounded string input.

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MODULES 05–06

05

Lessons & practice

- Pointers
- Allocation
- Structures
- Unions

HANDS-ON

Allocate a record array, update one record through a pointer and release memory.

06

Lessons & practice

- Text file I/O
- Compiler warnings
- Tests

HANDS-ON

Save an inventory file and test duplicate IDs, missing files and compiler warnings.