
Advanced C

This course takes off from where the basic course levels off. If you know the basics of C programming and want to dwell upon the intricacies of C, then this is the course for you

If you are seriously thinking of getting into developing programs in C language for enterprise uses, then this programme is for you.

The course at Technnovation tackles programming issues faced in real time embedded systems. It explores issues facing the programmers at the time of Compilation, linking and run-time.

The major topics covered in this course are Sorting, Searching, merging, structures, pointers, linked lists, stacks, queues, recursion and random numbers. It also covers interrupts and multi-tasking in C.

Why Need It

C programming is often used in the guts of operating systems and embedded system applications. It is a great tool for people who use machines with embedded software.

An advanced knowledge of C gives you the ability to be able to solve problem that comes up with you machinery (which are not produced in large quantities, hence don't have a plethora of developers working in it, also it may have an specialised OS built for it).

Features of the Course

- Experienced Faculty giving hands-on training
- Lots of experience in Runtime and Compilation problems
- Delving on the nitty-gritty of finer points of the issues faced with C programming

Course Goals

- Student is comfortable with advanced aspects of C Programming
- Students get idea of workings on the target processor at Runtime
- Introduction of good quality and style in writing the programming
- Students get hands-on experience of interrupts and real-time operating system

Who Can Take It



Anybody with a basic knowledge of C Programming and concepts such as variable, constants, assignment, selection (if...else) and looping (while, for). It is preferable if the candidate should have a little experience with writing functions and working with arrays.

Course curriculum

1. Introduction Program Structure

- Importance of good structure
- Quality and style

2. Pointers, Arrays & Dynamic Allocation:

- Arrays & pointers; compatibility and incompatibility

3. Function Pointers

- Basics
- Callbacks
- State machine

4. Unscrambling Declarations

- Rules
- Using typedef

5. Enumerations, Structures and Unions

- Enum vs. #define
- Struct layout
- Uses of union

6. Interrupts

- Hardware interrupt models
- Software interrupts

7. Multi-Tasking (Multi-Threading)

- Terminology
- Advantages and disadvantages
- Intertask Communication & Synchronisation

8. The Linker

- Memory sections

9. Start-up, Runtime and the Stack

- What happens before main
- What is happening at runtime
- Estimation of stack requirements

10. Dynamic Memory

- Malloc, calloc and realloc
- Variable sized structures
- Dangers

11. Memory Management and Protection

- Memory protection
- MMU

12. Writing Safer C

- Segmentation and paging

- MISRA-C Guidelines

13. OOP with C

- Object-based and objectoriented
- Classes, inheritance and polymorphism
- Associations and aggregation

14. Number Crunching

- Floating-point and fixed-point number systems
- IEEE Standard 754

15. The Standard Library

- Major issues

[Enroll for this batch](#)

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