

Certificate in Data Structures using C & C++



The Certificate in Data Structures using C & C++ is a 120 hours course designed to equip students with a deep understanding of data structures and algorithms, using two of the most powerful and widely used programming languages—C and C++. This course provides students with the skills to design, implement, and analyze algorithms that solve computational problems effectively. Students will master the fundamentals of various data structures such as arrays, linked lists, stacks, queues, trees, and graphs, enabling them to approach complex programming challenges with efficiency. The course also covers a range of algorithmic strategies, including iterative, recursive, divide-and-conquer, dynamic programming, and greedy algorithms, providing students with a solid foundation in computational problem-solving.

Syllabus & Skills covered (120 hours)

- Students will become proficient in C and C++ programming languages, specifically in the context of data structures.
- Ability to design, implement, and analyze algorithms for solving various computational problems.
- Proficiency in implementing and utilizing various data structures such as arrays, linked lists, stacks, queues, trees, and graphs.
- Enhanced problem-solving skills through the application of appropriate data structures and algorithms.
- Understanding of how to optimize the performance of algorithms and data structures.
- Ability to apply theoretical knowledge to practical problems in software development and other computational fields.
- A solid foundation for pursuing advanced studies and research in computer science and related fields.
- Comprehensive understanding of various algorithmic approaches, including iterative, recursive, divide-and-conquer, dynamic programming, and greedy algorithms.

Career Opportunities

- **Systems Programmer (Entry-Level)**
- **Junior Software Developer (C/C++)**
- **Algorithm Developer**
- **Embedded Systems Programmer**
- **Game Development Trainee (C/C++)**

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