



PROGRAMMING IN C++

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IIT Kharagpur

TYPE OF COURSE : Rerun | Core | UG/PG

COURSE DURATION : 8 weeks (26 Jul' 21 - 17 Sep' 21)

EXAM DATE : 26 Sep 2021

PRE-REQUISITES : Basic Knowledge of Programming, Data Structure, C Programming Attending a course on OOP/OOAD with this course will help

INTENDED AUDIENCE : BCA, MCA, B.Tech., M.Tech.

INDUSTRIES APPLICABLE TO : Programming in C++ is so fundamental that all companies dealing with systems as well as application development (including web, IoT, embedded systems) have a need for the same. These include - Microsoft, Samsung, Xerox, Yahoo, Google, IBM, TCS, Infosys, Amazon, Flipkart, etc.

COURSE OUTLINE :

There has been a continual debate on which programming language/s to learn, to use. As the latest TIOBE Index for May 2019 indicates - Java (16%), C (14%), C++ (8%), C#(4%), and Python (8%) together control nearly half the programming community. Given this, it is still important to learn C and C++ because of the efficiency they offer. While we appreciate that Java is good for applications, for graphics; and we acknowledge that Python is appropriate for portable software, engineering problem solving, and graphics; it is worth bearing in mind that the JVM and Python interpreter are indeed written in C++, making C++ the father of all languages today.

ABOUT INSTRUCTOR :

Prof. Partha Pratim Das received his BTech, MTech and PhD degrees in 1984, 1985 and 1988 respectively from IIT Kharagpur. He served as a faculty in Department of Computer Science and Engineering, IIT Kharagpur from 1988 to 1998. In 1998, he joined Alumnus Software Ltd as a Business Development Manager. From 2001 to 2011, he worked for Interra Systems, Inc as a Senior Director and headed its Kolkata Center. In 2011, he joined back to Department of Computer Science and Engineering, IIT Kharagpur as Professor. Dr. Das has also served as a Visiting Professor with Institute of Radio Physics and Electronics, Calcutta University from 2003 to 2013.

COURSE PLAN :

Week 1: Programming in C++ is Fun : Build and execute a C program in C++, Write equivalent programs in C++

Week 2: C++ as Better C : Procedural Extensions of C

Week 3: Overview of OOP in C++ : Classes and basic Object-Oriented features (encapsulation)

Week 4: Overview of OOP in C++ : More OO features, overloading, namespace and using struct and union

Week 5: Inheritance : Generalization / Specialization of Object Modeling in C++

Week 6: Polymorphism : Static and Dynamic Binding

Week 7: Type Casting & Exceptions : C++ cast operators; C++ Exceptions & standard exception classes

Week 8: Templates & STL - Function and Class templates and using STL like containers, algorithms