CODING BLOCKS

Sessions

- June – July
- August – November
- December - January
- February - April

FAQ

Q1. Who should do this course?

Ans. Anybody who is interested in learning programming can do this course. Java is a powerful and elegant language, but still is pretty easy to learn. Also, this opens the path to enter Enterprise Java world for making powerful desktop and web applications or mobile apps using Android.

Q2. I know C, should I do this course?

Ans. Yes. Absolutely. Not only will this course teach you Java, but also Object Oriented Programming which forms the base of most, if not all code running live across the globe. Besides it builds your problem solving skills, teaches you some fine data structures and helps you develop the thinking process to optimise your solutions.

Q3. I know C++, should I do this course?

Ans. Depends. Knowing C++ generally means you know Object Oriented Programming well. If that is the case, you'll be better served by learning some courses which teach you to create making mobile apps or web applications. Please check out our **Pandora** and **Elixir** course for those.

Q4. Will this help me with competitive programming?

Ans. This course will help you become smarter with your solutions. You'll be able to write solutions that run in lesser space and time. The last time we heard from capable competitive programmers, they said these skills made them capable.

Q5. Will this help me with interviews?

Ans. Yes. If you learn well, all that the course intends to teach, you'll be able to impress quite a few interviewers across quite a few fine companies.

Q6. Will this help me in making websites and apps?

Ans. No. This is a fundamentals course. To make websites and apps, you need to learn more. Please check out our **Pandora** and **Elixir** course for those.

Q7. Is this CORE Java or Advanced Java?

Ans. This is not CORE java or Advanced Java. This is a course which teaches you problem solving, data structures and Object Oriented Programming. Though, most of what CORE java means is being covered. The aim of the course is to help you with a smarter beginning. For being able to make web and mobile apps you need to learn frameworks. Android is one such framework for mobile apps. Please check out our **Pandora** and **Elixir** course for more details on these lines.

6. Typecasting
7. Loops and Decision constructs
8. Functions and operators
9. Arrays, multi-dimensional arrays and dynamic arrays
10. String and String Buffer

Recursion (**Lecture 6 to 8**)

1. Introduction
2. Classical Recursion Problems
3. Back-tracking
4. Advanced Recursion problems
5. Optimization

Time and Space Complexity (**Lecture 9**)

1. Experimental Analysis
2. Theoretical Analysis
3. Analysis of recursive functions
4. Optimization approaches

First Hackathon

Based on topics covered so far

Object Oriented Programming (**Lecture 10 to 13**)

1. Classes and objects
2. Class, Function and Data member modifiers
3. Encapsulation, Inheritance and Polymorphism
4. Abstract classes, Interfaces and Packages
5. Generics and Exceptions

Data Structures and Algorithms (**Lecture 14 to 23**)

1. Stacks and Queues
2. Linked Lists
3. Generic Trees
4. Binary Trees
5. Binary Search Trees
6. Heaps
7. Hash Tables
8. Graphs – Traversals, Minimum Spanning trees, Shortest path algorithms
9. Text Processing – Text Matching, Compression
10. Dynamic Programming

Project Development

1. One game developed in class
2. Second game done as assignment

Second Hackathon

Covering complete course

Pre-requisite

- Basic computer literacy.
- Number System – Decimal, Binary.
- Some coding experience in any language, though not an essential but it's a good to have.

CODING BLOCKS

CRUX - Data Structures and Algorithms in Java

Overview

Begin your career in software development with the introduction to Data Structures and Algorithms in Java. Java, an Object Oriented Programming is one of the most sought after programming language and is the foundation of the Android operating system. Java is a perfect computer language for being competitive in today's industry requirements.

Designed for beginners, CRUX is a hands on course where we focus on developing core programming concepts and equip you to code solutions for complex problems. With this course your learning will span –

1. Basic programming in Java
2. Recursion
3. Time and Space Complexity
4. Object Oriented Programming
5. Data Structures
6. Algorithms

This course entails more than 100 hours of teaching and hands on coding. Students will be solving more than 200 complex problems and will be evaluated for their problem solving skills and understanding of data structures throughout the course.

Programming is a practical skill and is best learnt by doing, hence we make it a point that all our classes are partitioned in a way to balance the theoretical and practical aspect.

Highlights

- Lectures – more than 24
- Teaching Hours – 100+
- Problems done in class – 150+
- Problems in assignments – 100+
- Evaluations - Done
- Projects – 1
- Hackathons – 2
- Hands-on learning, Theory to Practical ratio – 1:3
- Student to Mentor Ratio – 15:1

Curriculum

We have designed our course keeping in mind the requirements of beginners. We follow step-by-step approach to make students fall in love with programming and ignite their passion in coding with the help of problems ranging from easy to intermediate to expert level. During the course, focus will be on developing strong fundamentals, algorithms and data structures skills via practical problem solving. Find the specifics of course below

Problem Solving and Programming Fundamentals (**Lecture 1 to 5**)

1. Flowcharts, pseudo-code and brain teasers
2. IDE installation and familiarization
3. Debugging
4. Input-Output
5. Data Types and Variables