

# **DTC-SAP-374 Introduction to Algorithms and Models of Computation**

**Total Hours:** 60

**Target Audience:** Beginners

**Prerequisites:** Introduction to Python Programming

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## **Course Overview**

This course provides a comprehensive introduction to the core concepts of algorithms and computational theory. The curriculum covers a wide range of topics, from basic algorithm design and analysis to the study of formal languages and computational complexity.

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**Module 1: Introduction to Algorithms**

**Module 2: Languages and Regular Expressions**

**Module 3: Finite automata and Turing Machines (TMs)**

**Module 4: Search and Sorting Algorithms**

**Module 5: Recursion, Divide and Conquer, and Backtracking**

**Module 6: Dynamic Programming and Greedy algorithms**

**Module 7: Basic graph algorithms**

**Module 8: Complexity theory. NP-completeness**