Study Plan Schedule

\*\*Monday, 11 September 2023\*\*  
\*\*Goal:\*\* C++ Basics Review: OOP, Classes, Inheritance, Polymorphism

\*\*Tuesday, 12 September 2023\*\*  
\*\*Goal:\*\* C++ Basics Review: Practice OOP Concepts

\*\*Wednesday, 13 September 2023\*\*  
\*\*Goal:\*\* Constructors and Destructors in C++

\*\*Thursday, 14 September 2023\*\*  
\*\*Goal:\*\* Memory Management and Pointers in C++

\*\*Friday, 15 September 2023\*\*  
\*\*Goal:\*\* Introduction to STL (Standard Template Library)

\*\*Monday, 18 September 2023\*\*  
\*\*Goal:\*\* Sorting Algorithms: Bubble Sort, Quicksort, Mergesort

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\*\*Rest Day:\*\* Rest and Review Week 1

\*\*Wednesday, 20 September 2023\*\*  
\*\*Goal:\*\* Graphs Basics: Adjacency Lists and Matrices

\*\*Thursday, 21 September 2023\*\*  
\*\*Goal:\*\* BFS & DFS Graph Algorithms

\*\*Friday, 22 September 2023\*\*  
\*\*Goal:\*\* Shortest Path Algorithms: Dijkstra's and Bellman-Ford

\*\*Monday, 25 September 2023\*\*  
\*\*Goal:\*\* Minimum Spanning Tree (MST) Algorithms

\*\*Tuesday, 26 September 2023\*\*  
\*\*Goal:\*\* Implement Graph Algorithms: Practice

\*\*Wednesday, 27 September 2023\*\*  
\*\*Goal:\*\* Review Graph Algorithms

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\*\*Rest Day:\*\* Rest and Review Week 2

\*\*Friday, 29 September 2023\*\*  
\*\*Goal:\*\* Introduction to Path Planning

\*\*Monday, 02 October 2023\*\*  
\*\*Goal:\*\* A\* Algorithm and Practice

\*\*Tuesday, 03 October 2023\*\*  
\*\*Goal:\*\* A\* Algorithm: Advanced Concepts and Practice

\*\*Wednesday, 04 October 2023\*\*  
\*\*Goal:\*\* Probabilistic Roadmaps (PRM): Theory and Implementation

\*\*Thursday, 05 October 2023\*\*  
\*\*Goal:\*\* Probabilistic Roadmaps (PRM): Advanced Practice

\*\*Friday, 06 October 2023\*\*  
\*\*Goal:\*\* Grid-Based Search Algorithms

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\*\*Rest Day:\*\* Rest and Review Week 3

\*\*Tuesday, 10 October 2023\*\*  
\*\*Goal:\*\* Rapidly-Exploring Random Trees (RRT): Concepts

\*\*Wednesday, 11 October 2023\*\*  
\*\*Goal:\*\* Rapidly-Exploring Random Trees (RRT): Practice

\*\*Thursday, 12 October 2023\*\*  
\*\*Goal:\*\* Hybrid A\* Algorithm: Concepts

\*\*Friday, 13 October 2023\*\*  
\*\*Goal:\*\* Hybrid A\* Algorithm: Implementation

\*\*Monday, 16 October 2023\*\*  
\*\*Goal:\*\* Sampling-Based Algorithms: RRT\* and Variants

\*\*Tuesday, 17 October 2023\*\*  
\*\*Goal:\*\* Obstacle Detection and Avoidance Techniques

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\*\*Rest Day:\*\* Rest and Review Week 4

\*\*Thursday, 19 October 2023\*\*  
\*\*Goal:\*\* Introduction to Control Systems

\*\*Friday, 20 October 2023\*\*  
\*\*Goal:\*\* PID Control: Theory and Applications

\*\*Monday, 23 October 2023\*\*  
\*\*Goal:\*\* PID Control: Implementation and Tuning

\*\*Tuesday, 24 October 2023\*\*  
\*\*Goal:\*\* Control System Design: Feedback and Feedforward Control

\*\*Wednesday, 25 October 2023\*\*  
\*\*Goal:\*\* Review and Practice Control Systems

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\*\*Rest Day:\*\* Rest and Review Week 5

\*\*Friday, 27 October 2023\*\*  
\*\*Goal:\*\* Forward Kinematics: Concepts and Practice

\*\*Monday, 30 October 2023\*\*  
\*\*Goal:\*\* Inverse Kinematics: Theory and Practice

\*\*Tuesday, 31 October 2023\*\*  
\*\*Goal:\*\* Robot Dynamics: Forces and Motion

\*\*Wednesday, 01 November 2023\*\*  
\*\*Goal:\*\* Implementing Motion Control with Dynamics

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\*\*Rest Day:\*\* Rest and Review Week 6

\*\*Friday, 03 November 2023\*\*  
\*\*Goal:\*\* Introduction to Sensors: LIDAR, GPS, Cameras

\*\*Monday, 06 November 2023\*\*  
\*\*Goal:\*\* Kalman Filter for State Estimation: Theory and Practice

\*\*Tuesday, 07 November 2023\*\*  
\*\*Goal:\*\* Particle Filter for Localization: Concepts

\*\*Wednesday, 08 November 2023\*\*  
\*\*Goal:\*\* Implement Particle Filter: Practice

\*\*Thursday, 09 November 2023\*\*  
\*\*Goal:\*\* Sensor Fusion: Combining Multiple Sensors

\*\*Friday, 10 November 2023\*\*  
\*\*Goal:\*\* Implement a Simple Sensor Fusion System

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\*\*Rest Day:\*\* Rest and Review Week 7

\*\*Tuesday, 14 November 2023\*\*  
\*\*Goal:\*\* Combining Path Planning with Control Systems

\*\*Wednesday, 15 November 2023\*\*  
\*\*Goal:\*\* Building a Complete Path Planning System

\*\*Thursday, 16 November 2023\*\*  
\*\*Goal:\*\* Testing and Debugging the System

\*\*Friday, 17 November 2023\*\*  
\*\*Goal:\*\* Optimize Path Planning Algorithms

\*\*Monday, 20 November 2023\*\*  
\*\*Goal:\*\* Final Project Wrap-Up and Reflections