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ARDUINO CODING

CHAPTER 1

LEARN ABOUT LDR SENSOR AND TEMPERATURE SENSOR

Explore the Light Dependent Resistor (LDR) sensor and temperature sensor, understanding its working principle and applications. Students will learn to integrate LDR sensors with Arduino for practical light measurement projects. The chapter covers interfacing these sensors with Arduino for temperature monitoring and control systems.

CHAPTER 2

EXPLORE PIR MOTION SENSOR

Learn about Passive Infrared (PIR) motion sensors, their functionality, and applications in detecting motion. Students will create projects that use PIR sensors for security and automation systems.

CHAPTER 3

LEARN ABOUT SOIL MOISTURE SENSOR

Understand soil moisture sensors and their role in agriculture and gardening. This chapter teaches how to use soil moisture sensors with Arduino to monitor soil conditions and automate watering systems.

CHAPTER 4

OBSTACLE AVOIDING ROBOT

Explore the world of robotics with the Obstacle Avoiding Robot project. Learn to build and program a robot that autonomously navigates its environment using sensors, integrating Arduino for control and decision-making.

CHAPTER 5

INTERACTIVE ARDUINO CALCULATOR

Discover interactive electronics with the Arduino Calculator project. Learn to design and implement a calculator using Arduino, enhancing your understanding of microcontroller logic and programming concepts.

CHAPTER 6

2D MODIFICATION TOOLS

Chapter 6 introduces the Sweep command in Fusion 360, allowing you to create 3D models by sweeping 2D sketches along a defined path or trajectory. You'll explore how to use the Sweep command to generate complex shapes and profiles in your designs.

CHAPTER 7

3D MODELING

In Chapter 7, you'll learn about the Loft command in Fusion 360, which enables you to create 3D models by blending or transitioning between two or more 2D sketches. You'll understand how to apply the Loft command to create organic and sculpted forms in your designs.

CHAPTER 8

MASTERING 3D COMMANDS IN CAD

Chapter 8 covers advanced modeling commands in Fusion 360, including the Rib, Web, Emboss, and Hole & Thread commands. You'll explore these commands in detail and learn how to leverage them to enhance the complexity and functionality of your 3D models.

3D CAD

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3D CAD

CHAPTER 9

CREATING COOL FEATURES IN CAD

This chapter focuses on 3D pattern commands in Fusion 360, which allow you to efficiently replicate features or components in your designs. You'll learn about 3D rectangular patterns, 3D circular patterns, and patterns along a path, gaining insight into creating repetitive structures and assemblies in your models.

CHAPTER 10

FUN WITH 3D PATTERNS IN CAD

This chapter introduces students to the basics of creating intricate and engaging 3D designs using CAD software, focusing on patterns and textures. Through hands-on activities, students learn to manipulate shapes, apply transformations, and explore the artistic side of 3D modeling, enhancing their spatial awareness and creativity.

CHAPTER 11

INTRODUCTION TO PYTHON

This chapter covers the fundamental concepts of Python programming, including data types, variables, operators, and basic input/output operations. It serves as an introduction to the Python programming language for beginners, providing a solid foundation for further exploration of Python programming..

CHAPTER 12

DATA STRUCTURES IN PYTHON

This chapter covers essential data structures such as lists, tuples, dictionaries, and sets. It explores their characteristics, uses, and the operations that can be performed on them. The chapter provides examples and coding exercises to demonstrate how to implement and utilize these data structures efficiently in Python programming.

CHAPTER 13

FUNCTIONS AND METHODS IN PROGRAMMING

This chapter delves into the creation and utilization of functions and methods to organize and modularize code. It explains the difference between the two, including parameters, return values, and scope.

CHAPTER 14

BASICS OF OBJECT-ORIENTED PROGRAMMING (OOP) IN PYTHON

This chapter introduces the core concepts of OOP, such as classes, objects, inheritance, and encapsulation. It explains how these principles help in organizing code in a modular, reusable, and scalable manner.

CHAPTER 15

CODING PRACTICE IN PYTHON

This chapter provides a series of programming exercises and activities aimed at reinforcing the concepts covered in previous chapters. These exercises offer opportunities for hands-on practice and application of Python programming skills, helping learners build confidence and proficiency in writing Python code.

PYTHON