8-Month Basic Robotics Course

🌐 Ts-Developers.com

📋 Prepared by: Abdul Basit

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Month 1: Introduction to Robotics & Arduino

- **Week 1: What is Robotics? History, Scope & Real-Life Applications**
- **Week 2: Types of Robots (Industrial, Mobile, Humanoid, Service)**
- **Week 3: Introduction to Arduino Platform & IDE Setup**
- **Week 4: First Project – Blinking an LED**

📘 **Book Reference**:

- *Project 0: Getting Started*
- *Testing Arduino, IDE Interface, Blinking LED*

Month 2: Electronics Fundamentals & Basic Circuits

- **Week 5: Ohm's Law, Voltage, Current, Resistance**
- **Week 6: Breadboards, Wires, Resistors, LEDs**
- **Week 7: Simple Switch & Button Control**
- **Week 8: Sensor-Based Projects (IR / Moisture)**

📘 **Book Projects**:

- *Project 1: Pushbutton LED*
- *Project 2: Light Dimmer*
- *Project 5: Plant Monitor*

Month 3: Motor Control & Output Devices

- **Week 9: DC Motors, Servo Motors – Working & Wiring**

- **Week 10: Writing Arduino Code to Control Motors**
- **Week 11: PWM & Speed Control (Fan or Motor)**
- **Week 12: Project – Motor-Controlled Fan / Moving Object**

📘 **Book Projects**:

- *Project 3: Bar Graph*
- *Project 10: Joystick-Controlled Laser*
- *Project 11: Remote-Controlled Servo*

Month 4: Display Systems (LCD & Serial Monitor)

- **Week 13: Introduction to LCDs (16x2) & Serial Output**
- **Week 14: Displaying Sensor Readings on LCD**
- **Week 15: Real-Time Monitoring Project**
- **Week 16: Project – Simple Weather Station**

📘 **Book Projects**:

- *Project 12: LCD Writer*
- *Project 13: Weather Station*

Month 5: Robot Chassis Design & Assembly

- **Week 17: Robot Frame Design Basics**
- **Week 18: Chassis Assembly (Motors, Wheels, Battery)**
- **Week 19: Wiring & Testing Movement Logic**
- **Week 20: Project – Assembling a Simple Moving Robot**

📘 **Use build concepts from Projects 10–11 + your own chassis setup**

Month 6: Wireless Communication & Remote Control

- **Week 21: Bluetooth Modules (HC-05) Setup & Commands**
- **Week 22: Remote-Controlled Robot Car using Mobile**
- **Week 23: Debugging & Signal Range Testing**
- **Week 24: Project – Bluetooth Controlled Car**

📘 **Book Projects**:

- *Project 23: Wireless ID Card Entry (Bluetooth Concepts)*
- *Extend Project 11 for Car Control*

Month 7: Advanced Robotics Concepts

- **Week 25: Sensor Fusion – Multiple Sensor Integration**
- **Week 26: Security Systems with Motion or Laser**
- **Week 27: Project – Motion Sensor Alarm or Trip Wire**
- **Week 28: Project – Keypad Entry System (Optional)**

📘 **Book Projects**:

- *Project 18: Intruder Sensor*
- *Project 19: Laser Trip Wire*
- *Project 22: Keypad Entry*

Month 8: Final Project, Career & Certification

- **Week 29: Planning the Final Project (Design + Purpose)**
- **Week 30: Assembly + Programming of Final Robot**
- **Week 31: Resume, Portfolio & Robotics Careers**
- **Week 32: Presentation, Demo & Certificate Distribution**

🏁 **Final Project Ideas**:

- Line Following Robot

- Bluetooth Controlled Robot
- Moisture Sensor Smart Pot
- Security Laser System**Month 1: Introduction to Robotics & Arduino**
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