Suite 10-B, 8/A/10, Doreen Tower,
Road 13, Dhanmondi, Dhaka 1209
+8801886892326
contact@techautocrats.com

Basic Robotics Course

Class-by-Class Curriculum

Class	Topic	What Is Covered
1	Introduction to Robotics	What a robot really is, real-world examples, the main parts of a robot (sensors, controller, actuators) and a live demonstration.
2	Breadboard Basics	Fundamentals of electricity, how a breadboard works, wiring LEDs and resistors, and building first circuits safely.
3	Getting Started with Arduino	The Arduino board, setting up the Arduino IDE, uploading a first program and controlling LEDs with digital pins.
4	Exam 01	Written and hands-on assessment of Classes 1 to 3, followed by review and feedback.
5	Programming Basics	Variables, data types, conditions, loops and functions in Arduino C, with a focus on clean, readable code.
6	Sensors: Introduction	How robots sense their surroundings. Working with ultrasonic sonar, IR and temperature-humidity sensors, and reading their values correctly.
7	Motors and Actuators	DC motors and servo motors, H-bridge motor control with the L298N driver, and forward, backward and turning logic.
8	Building a Remote Controlled Robot	Assembling a wheeled robot, connecting motors, driver and controller, and driving the finished robot.
9	Displays and Communication	Presenting information on displays, serial communication between devices, and the basics of wireless control.
10	Exam 02	Assessment of Classes 5 to 9, with review and feedback.
11	Debugging and Optimization	Locating and fixing wiring and code errors step by step, disciplined testing habits, and making projects reliable.
12	Final Project and Showcase	Each student plans, builds and presents an original project.

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Course Fee and Payment

Course Fee: 6,500 BDT

Payment Method	Details
bKash (Send Money + charge)	01805487158
Dutch-Bangla Bank	Account Name: Tech Autocrats Account Number: 2181100192063 Bank Name: Dutch Bangla Bank Limited Branch Name: Patuakhali
BRAC Bank	Account Name: TECH AUTOCRATS Account Number: 2077576490001 Bank Name: BRAC Bank PLC Branch Name: Patuakhali Branch Routing Number: 060781093

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Advance Robotics Course

Class-by-Class Curriculum

Class	Topic	What Is Covered
1	Electronics, Mechanics and Software	How the three pillars of robotics work together in one machine, review of core concepts and the course roadmap.
2	Hardware Interrupts	Making a robot respond instantly to events, interrupt pins in practice, and building an emergency stop.
3	Software Interrupts and Timers	Timer-based multitasking and scheduling tasks without blocking the program.
4	The map() Function	Scaling sensor and controller values between ranges, calibration and practical mapping exercises.
5	Programming Deep Dive	Structured code for robots: functions, program flow, and writing code that is easy to test and extend.
6	Arrays	Storing and processing multiple readings, smoothing noisy sensor data, and handling several sensors at once.
7	EEPROM	Saving settings and data that survive power-off by reading and writing the board's built-in memory.
8	Exam 01	Written and practical assessment of Classes 1 to 7.
9	Servo Drivers	Driving multiple servos with a dedicated driver board: the foundation of robotic arms and multi-joint mechanisms.
10	Radio Controller (FlySky) with Arduino	Reading receiver channels, mapping stick movement to robot motion, and completing a radio controlled robot.
11	HuskyLens AI Vision	Face, object, colour and line recognition with the HuskyLens AI camera, connected directly to robot behaviour.
12	Raspberry Pi Setup	Installing the operating system, first boot and configuration, and an overview of the GPIO pins.
13	Raspberry Pi in Practice I	Python programming on the Raspberry Pi and controlling hardware through the GPIO pins.
14	Raspberry Pi in Practice II	Sensors and camera on the Raspberry Pi, and connecting the Pi and Arduino into one system.
15	Project Class	A guided project build combining the skills of the course.
16	Final Exam	Written and practical assessment covering the full course.

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Course Fee and Payment

Course Fee: 9,999 BDT

Payment Method	Details
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Advance+ (Plus) Course

Class-by-Class Curriculum

Class	Topic	What Is Covered
Module 1: Python Programming (Classes 1 to 3)		
1	Python Basics I	Setting up Python, syntax, variables, data types, input and output.
2	Python Basics II	Conditions, loops, and writing and using functions.
3	Python Basics III	Lists, dictionaries and modules, with practical exercises to secure the fundamentals.
Module 2: Computer Vision (Classes 4 to 8)		
4	Introduction to Computer Vision	How computers see images. HSV and RGB colour spaces, and building colour filters.
5	Colour-Based Detection in Practice	Tuning colour masks, tracking objects by colour, and an introduction to depth (RGB-D) concepts.
6	Pattern Recognition	Detecting shapes and patterns in images, and feature-based recognition.
7	Model Training and Fine-Tuning	Preparing data, training a recognition model, and improving accuracy through fine-tuning.
8	Real-Time Application and Test	Running the complete vision pipeline on a live camera feed, followed by the module test.
Module 3: ROS 2 (Classes 9 to 15)		
9	Linux Environment Setup	Dual-boot and VirtualBox setup, and installing Ubuntu safely alongside Windows.
10	Linux Basics	The filesystem, users and permissions, and essential terminal skills.
11	Command Line Tools and ROS 2 Setup	Installing command line tools and ROS 2, and preparing the workspace.
12	ROS 2 Fundamentals	What ROS is, why modern robots run on it, and the core ideas of nodes, topics and messages.
13	ROS 2 Architecture and GUI Tools	How a full ROS system fits together, plus the visual tools used to monitor and debug it.
14	Creating and Running Nodes	Writing first nodes, publishers and subscribers, and running a small ROS system.

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Class	Topic	What Is Covered
15	Package Management	Building your own ROS packages, and installing and using external packages.
Module 4: Autodesk Fusion (Classes 16 to 20)		
16	Installation and Introduction	Setting up Autodesk Fusion, interface tour, and navigating in 3D.
17	Sketching and Solid Modelling	From 2D sketch to 3D solid: the core modelling workflow.
18	Construction Features	Planes, axes, patterns and other construction tools for precise, professional design.
19	Modelling Tools in Depth	The practical modelling tools used in real robot part design.
20	Surface and Sheet Metal Modelling	Surface techniques and sheet metal design, closing with a final design exercise.

Course Fee and Payment

Course Fee: 14,599 BDT

Payment Method	Details
bKash (Send Money + charge)	01805487158
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PCB Design Course

Class-by-Class Curriculum

Class	Topic	What Is Covered
1	Introduction to PCB Design	What a PCB is, the full design pipeline from schematic to fabrication, core terminology, a tour of the KiCad interface, and a preview of both course projects.
2	IR Sensor Module: Schematic	How IR obstacle and line sensors work, then building the full schematic together: emitter, receiver, comparator IC, threshold potentiometer, status LED and output header.
3	IR Sensor Module: Schematic to Netlist	Completing footprint assignment, running the electrical rules check (ERC), fixing errors, generating the netlist, and roughing out the board outline.
4	IR Sensor Module: Layout, Routing and Output	Placing components with intent, routing all nets, running the design rules check (DRC), 3D preview, and exporting Gerbers and BOM. First complete project done.
5	Motor Driver Module: Schematic	Full circuit walkthrough: power input, driver IC, motor output, logic pins and status LED. Key terminology: H-bridge, bulk capacitor, flyback protection.
6	Motor Driver Module: Schematic to Netlist	Footprint assignment, layout best practices, ERC, netlist generation, and planning the board layout on paper first.
7	Motor Driver Module: Layout and Routing	Importing the netlist, placing components by function block, routing power paths wide and logic paths thin, and running DRC.
8	Manufacturing Outputs and Wrap-Up	3D review, full Gerber, drill, BOM and pick-and-place export, review of both projects, and next steps: soldering, testing and further designs.

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Course Fee and Payment

Course Fee: 4,499 BDT

Payment Method	Details
bKash (Send Money + charge)	01805487158
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