



AGE 12-16 · GRADE 6-10

BUILD REAL ROBOTS WITH ARDUINO

Robotics Innovation

Course Snapshot

DURATION

2.5 Months

CLASSES

10 Classes (Every Sunday)

FORMAT

In-Person Only (Kathmandu)

BATCH SIZE

Maximum 10 Students

PLATFORM

Arduino IDE (C/C++), Hands-On Project-Based Learning

KIT & MATERIALS

Complete Robotics Kit Provided, Arduino UNO, Sensors, Motors & Bluetooth Module

DEVICE NEEDED

Laptop with USB Port

CERTIFICATE

YCA Robotics Innovation Certificate



Our Teaching Approach

- Fully hands-on classes with real circuits, sensors, and motors, not a simulation.
- Weekly Sunday sessions that give each concept time to sink in between classes.
- Project-based learning, ending in a real robotics project your child presents to parents.

SYLLABUS



Robotics Innovation Course

2.5 months · 10 classes, from your first circuit to a Bluetooth-controlled robot.

MODULE 1 Robotics & Electronics Foundations

Sunday 1-2

- Introduction to robotics and automation
- Understanding electronic components
- Arduino UNO fundamentals
- Breadboard and circuit building
- LEDs, resistors, and digital output
- Installing the Arduino IDE
- Writing and uploading your first program

Project: Smart Traffic Light System

MODULE 2 Sensors & Smart Automation

Sunday 3-5

- Digital inputs and push buttons
- Buzzers and sound output
- Light sensor (LDR)
- Ultrasonic distance sensor
- Reading sensor data
- Building smart automation systems
- Real-life applications of sensors

Projects: Automatic Night Lamp, Obstacle Detection Alarm

MODULE 3 Motors & Robotics

Sunday 6–8

- DC motor fundamentals
- Motor driver module
- Servo motor basics
- Bluetooth module (HC-05)
- Smartphone control
- Wireless communication
- Robot movement programming
- Testing and troubleshooting

Project: Bluetooth-Controlled Robotic Car

MODULE 4 Robotics Innovation Challenge

Sunday 9–10

- Planning your own robotics solution
- Combining sensors, motors, and programming
- Testing and debugging
- Improving performance
- Presentation and demonstration skills

Project: Final Robotics Innovation Project

FINAL CLASS · SHOWCASE

A Real Robot, A Real Showcase

Students work individually or in teams to build a unique robotics project, combining sensors, motors, and Arduino programming, then showcase it to parents on the final class.

