



Electronics, IoT and Robotics

ZTH-ROB-002 | Digital Explorers | Core | Robotics, electronics and IoT

12 weeks

duration

36 hours

learning time

2 x 1.5h

live sessions per week

US\$130.00

fee per learner

In this course you will read circuits and use a multimeter.

Delivery

Offline-ready: can run without internet

Suitable for

Secondary-age 14-18, Tertiary and university, Teachers, Women and girls, NGOs and community hubs

What you will be able to do

- Read circuits and use a multimeter
- build and program microcontroller projects with sensors and actuators
- send sensor data to a simple dashboard

Syllabus

1. Electronics basics and safety
2. Breadboards and sensors
3. Microcontroller programming
4. Motors and robot movement
5. Wireless data and dashboards
6. Power systems and batteries
7. Enclosures and 3D-printed parts
8. Capstone build

Hands-on practical work

- Temperature and humidity logger
- line-following robot
- water-level alert
- smart light switch
- solar-powered sensor node

Resources and equipment

Microcontroller boards, breadboards, jumper wires, sensors, relays, motor drivers, multimeters, soldering station (supervised, 16+), safety glasses, laptops

Off-grid and solar option

Battery-powered nodes and a small solar panel with charge controller; low-power sleep modes taught





Assessment

Labs, working build, documentation

Career direction

IoT technician, electronics technician, robotics assistant, embedded developer, maker entrepreneur

IoT and automation demand is growing in farming, water, energy and security

Next steps

From DS2; leads to MK4 Robotics and Automation and MK5 IoT and Applied AI

Enrol

Skills first, certificate second: you finish with something you can do and a QR-verifiable certificate to prove it.

Enrol online at <https://zambesi.ac.zw/course.php?slug=electronics-iot-and-robotics> or contact
info@zambesi.ac.zw / +263 7X XXX XXXX.

