Coding & Robotics

This intensive one-week programme aims to develop the students' understanding of coding, electronics, and robotics.

The learners work in pairs and will be given tutorials that will enable them to learn the basics of Python, interface with microcontrollers, and use the pi-top [4] modular system to build robots.

Learners will be given the opportunity to stretch their understanding of automated processes and AI control. At the completion of their course, students will get an Adafruit Circuit Playground Express and Crickit to continue coding on their return home.

INSTRUCTOR

Tuition is carried out by Dr Darragh Corvan (PhD) from Dr C's Electro Labs ltd. Dr C has over 15 years of experience in education, and is passionate about Science, Technology, Engineering and Mathematics (STEM) education. Students will receive a Raspberry Pi Pico and box of electronics* to continue their coding journey from home.

PROGRAMME

This intensive Coding & Robotics course gives students the opportunity to explore the world of Coding & Robotics through a variety of workshops and real-life English language for that specific area.

All sessions are delivered in English, with a focus on technical language for course content. Students will be able to learn basic commands and modules of Python, create classes and applications, as well as interface with robots and microcontrollers.

*subject to change

As part of the course, they will be able to build robots. Depending on their experience, learners might begin to work with AI to detect objects and develop a driverless car or autonomous rescue vehicle.

ENGLISH LEVELS

We accept levels from B1 (Intermediate) to C2 (Proficiency). We cannot accept Complete Beginners or Beginners on this course. Students whose mother tongue is English are welcome on this course.

COURSE CONTENT

Python Students learn how to use Python via basic commands and modules.

Microcontrollers Focuses on applying Python for microcontroller use and basic programming. Students will work with their own Circuit Playground Express and Crickit to create some interesting devices linked to the course learning.

Building Robots Students explore applying Python and the electronics to robotics applications.

The aim is to move away from block coding, and give learners real exposure to real coding in Python. Students create basic algorithms to control a robot and develop applications.

Advanced students can use AI to do object detection and facial recognition.
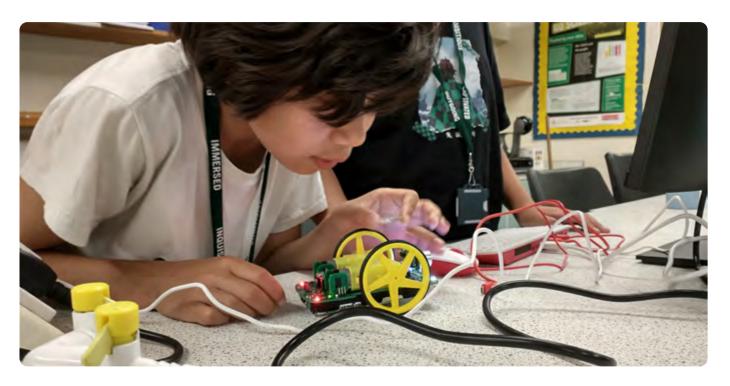
EXCURSIONS

Coding & Robotics students will join Dicker's English Plus students on Wednesdays half-day and weekends full-day excursions for the exciting, cultural and historic adventures to destinations and attractions around London and the South of England.

TYPICAL DAY

Coding & Robotics students receive 20 hours of Coding & Robotics tuition per week.

> **i** For further information on the Typical Day, Facilities and Excursions at Dicker please visit page 40.

These are split into sessions Monday to Friday, working with Dr Corvan all days except Wednesday where students receive a special 2 hours workshop linked to their course.

Students will join the English Plus Dicker students for their selection of afternoon activities or have the option to select an Academy.

9.00	**CODING & ROBOTICS SESSION 1: INTRO TO PYTHON CODING**
10.15	**CODING & ROBOTICS SESSION 2: PYTHON COMMANDS & MODULES**
11.30	**CODING & ROBOTICS SESSION 3: USING MICROCONTROLLERS**
13.30	**CODING & ROBOTICS SESSION 4: APPLICATION OF MICROCONTROLLERS TO ROBOTS**

LOCATION	Dicker
AGES	12–17
DATES	14–20 July 2024
CAPACITY	14
WORKSHOPS	20 hours per week
MINIMUM LEVEL	B1
BEDS PER ROOM	1–4 beds
STAFF:STUDENT RATIO	1:5
SPECIALITY	Coding & Robotics