

Course code ICT.1.ARDU

Last update 21/10/21

Course information

Title	Introduction to Coding and Robotics with Arduino
Concept by	Lorenzo Gaspari
Course URL	teacheracademy.eu/course/coding-and-robotics-with-arduino/
N. of participants	Min. 4 - Max. 12
Course length	One week (6 days, Monday - Saturday)
Language	English. Other languages may be available upon request
Locations and starting dates	<ul style="list-style-type: none"> • Berlin - Second and fifth Monday of the month • Florence - Third Monday of the month • Split - Fourth Monday of the month <p>On request, we can organize this course directly at your school. Discover all the dates at teacheracademy.eu/courses-dates/</p>
Free time activities offered	All courses include at least one city guided tour and one full-day Cultural Activity.
Type of certification awarded	Certificate of Attendance, including a description of the course contents (80% of attendance required); other Certificates may be available upon request
Price	<p>Starting from 480€ *</p> <p>* Our courses are eligible to be completely funded by the Erasmus+ KA1 funds and several other programs.</p>

Course contents

Description	<p>This course aims to introduce participants to the Arduino software; all students love working with Arduino, it's innovative, user friendly and easy to understand and a great way to start learning more about electronics and robotics.</p> <p>This week-long course will use both theoretical and practical sessions to teach the basic skills needed to introduce your students to the Arduino software and C++ coding language.</p> <p>By the end of the course you will have all the skills required for your own Arduino project. During the course we will give you an Arduino set and all the different parts needed to work on your own.</p> <p>Arduino is very fun to work with and we promise that you will feel proud of your work, and after just a few practice exercises you will start to understand not only the C++ coding language, but also how the different devices around us actually work.</p>
Learning outcomes	<ul style="list-style-type: none">• Understand the value and importance of learning a coding language;• Be able to write a simple program in C++ with GNU Compiler;• Transform a physical input into a digital input and analyze it;• Work to complete customizable full Arduino project autonomously, from the beginning to the end;• Understand the function of electronic sensors and components;• Learn to build your own led circuit;• Plan and design innovative and fun tools for education.

Tentative schedule*

Day 1 - Course introduction & setting goals	Day 2 - Learning the basics of C++ coding
<ul style="list-style-type: none">• Introduction to the course, the school, and the external week activities;• Icebreaker activities using drama for trust and ensemble building. Setting goals <ul style="list-style-type: none">• Identification of needs and goals for each participant and relevant populations;• First steps into C++;• Where is C++ used, what are the main difference with other coding languages;• Coding and education;• Presentations of the participants' schools.	<ul style="list-style-type: none">• Download and installation of Gnu++ compiler. Download and installation of the Arduino IDE;• Learn basic of C++ coding through the creation of a simple geometry program.
Day 3 - Put it to the test	Day 4 - Experiment with sensors
<ul style="list-style-type: none">• Explore the kit you have in front of you. Learn about Arduino board, and install all his parts;• Introduction to electronics. Basic concepts;• Write your first C++ program to control a button to turn led on/off. Other experiments with the led.	<ul style="list-style-type: none">• Sound and light sensors. Control digital output using physical input;• Experiments with sensors. Program the Arduino board to see values of the sensors on a serial monitor;• Plan the design of an Arduino based simple quiz game.
Day 5 - Build your quiz game	Day 6 - Course Closure & Excursion
<ul style="list-style-type: none">• Build the quiz game, finalize and try it.	<ul style="list-style-type: none">• Course evaluation: round up of acquired competences, feedback, and discussion;• Awarding of the course Certificate of Attendance;• Excursion and other external cultural activities.

*The schedule describes likely activities but may differ significantly based on the requests of the participants, and the trainer delivering the specific session. Course modifications are subject to the trainer's discretion. If you would like to discuss a specific topic, please indicate it at least 4 weeks in advance.

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