








## Coding and Robotics with Arduino

By Lorenzo Gaspari

### Course details

-  One week course
-  Starting from 480€ (Cultural activities included)\*
-  Min. 4 - max. 14 participants
-  Certificate of attendance included (80% of attendance required)
-  Available in Berlin, Malta, Rome, and Split

\* A 60 € late registration fee will be applied if you register less than 8 weeks before the course start date.

### Course description

This course aims to introduce participants to the Arduino software; all students love working with Arduino, it's innovative, user-friendly, easy to understand, and a great way to start learning more about electronics and robotics.

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.

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.

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.

### Requirements

Suggested computer proficiency: Advanced



## Learning outcomes

The course will help the participants to:

- 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 a 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

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#### Course introduction

- Introduction to the course, the school, and the external week activities;
- Icebreaker activities using drama for trust and ensemble building.

#### Setting goals

- Identification of needs and goals for each participant and relevant populations;
- First steps into C++;
- Where is C++ used, and what are the main differences with other coding languages;
- Coding and education;
- Presentations of the participants' schools.

### Day 2 – Learning the basics of C++ coding

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- Download and install of Gnu++ compiler;
- Download and installation of the Arduino IDE;
- Learn basic C++ coding through the creation of a simple geometry program.

### Day 3 – Put it to the test

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- 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.

#### Day 4 – Experiment with sensors

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- Sound and light sensors. Control digital output using physical input;
- Experiments with sensors. Program the Arduino board to see the values of the sensors on a serial monitor;
- Plan the design of an Arduino-based simple quiz game.

#### Day 5 – Build your quiz game

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- Build the quiz game, finalize, and try it.

#### Day 6 – Course closure and cultural activities

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- Course evaluation: round-up of acquired competencies, 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.

Our courses usually include two cultural activities. Further information is available on the webpage of each course location.

## About the provider

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