



FAQs

GENERAL

What is Braccio ++?

Braccio ++ is a solid robotic arm made of eco-plastic. Students will learn real-life applications of physical concepts through lifting, placing, and rotating an item. These concepts include motions, forces, torque, gear ratio, stability, and weight of payload.

In addition to the open-source hardware in the kit, there's an e-learning platform with step-by-step instructions, lessons, and other learning materials.

What concepts are covered?

The content that accompanies Braccio ++ covers kinematics, dynamics, and control at university. For high school, it also covers computer-integrated manufacturing.

How do I access the Braccio ++ content?


You can access the course content by registering the kit. Follow the instructions printed on the paper tray of the box. After signing in to Arduino, you will be asked for the activation code which you can also find in the box.

Once the kit is registered, you can access the Braccio ++ online course anytime from your profile menu or by going to braccio.arduino.cc.

What are the differences between the Tinkerkit Braccio and the Braccio ++ ?

We have made many updates and improvements to the original Tinkerbit Braccio robot to create Braccio ++. These include:

- A different carrier with RS485 serial communication, an LCD screen, and a joystick

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- The kit now includes an Arduino board
 - Instead of classic servo motors, the kit includes Arduino smart motors
 - USB C powers the carrier and motors, and can be even used for charging your computer
 - We are using a more sustainable material, Ecoallene, instead of ABS plastic
 - You have a bigger base on which to mount the Braccio ++
 - Improved packaging, allowing you to mount and transport your Braccio ++ in the box
 - New, dedicated online content

Are any additional physical components required?

No other additional physical component is required to use the Braccio ++.

Is this kit suitable for distance learning?

Yes, the new kit allows for both remote and in-class use. The online educational platform and content can be accessed from wherever students are, as long as they have an internet connection. The kit also includes all the hardware students need for the lessons and projects.

How is the content structured?

Braccio ++ includes an online learning platform with educational content. The content is structured with a how to get started section, four lessons, and three projects.

The lessons are meant to be taught chronologically, as students will need to apply their previously learned knowledge to the next lesson.

The content includes teacher notes, activities, and challenges for the students which follow the main topics inside the lessons, building up in complexity one after another.

Do I need to follow the activities in the order provided?

Yes, the lessons and projects are best taught chronologically as they build in complexity and students will need to apply their previously learned knowledge to accomplish them.

Who can use the kit?

The kit is designed solely for advanced high school and university students aged **16+**, including engineering schools and institutes of technology – or even advanced high school and college students studying the sciences, industrial science, or technology.



What are the minimum knowledge requirements for using the kit?

To use Braccio ++, students need basic programming knowledge and should be familiar with Arduino.

How many students can use the kit?

Up to three students can use the kit.

What languages does the online platform support?

The online platform is currently available in English.

Where is the registration code?

The registration code can be found inside the physical kit. Each kit includes a unique code that is used to access the online platform.

What operating system is required?

Windows:

- Windows 7 Service Pack 1
- Windows 10 (version 1803 or higher)
- Windows Server 2019
- Windows Server 2016

Mac:

- macOS Big Sur (11)
- macOS Catalina (10.15)
- macOS Mojave (10.14)

Note: macOS High Sierra (10.13) is no longer supported

On macOS Mojave, version 10.14.6 is recommended.

Linux:

- Ubuntu 20.04 LTS
- Ubuntu 18.04 LTS
- Ubuntu 16.04 LTS
- Debian 10
- Debian 9
- Red Hat Enterprise Linux 8
- Red Hat Enterprise Linux 7 (minimum 7.5)
- SUSE Linux Enterprise Desktop 12 (minimum SP2)
- SUSE Linux Enterprise Desktop 15

- SUSE Linux Enterprise Server 12 (minimum SP2)
- SUSE Linux Enterprise Server 15

Note:

Red Hat Enterprise Linux 6 is no longer supported.
Support for Debian 9 will be discontinued in an upcoming release.

CLASSROOM SETUP

What are the minimum requirements for using Braccio ++ in the classroom?

The kit comes with all the required components you need to get started.

The only other things you need are a computer with an Arduino-compatible operating system and a stable WiFi connection.

ACCESS TO THE ONLINE PLATFORM

How do I share access to my online courses with other people?

You can share access to your online courses with any number of people using the classroom system. After registering a kit, go to classroom.arduino.cc and **set up a classroom**. Once your classroom is set up, you can invite other educators and students to join you. Everyone who joins your classroom will immediately get access to any online courses associated with it.

How many lessons are included in the kit and what are they?

The content comes with four lessons and a getting started guide. The lessons teach students about the different components included in the kit. Students will learn how to use the different features of Braccio ++ and how to solve problems related to the components.

After going through the lessons, students will learn about topics related to the basic movements possible by Braccio ++, such as motions and forces, kinematics, manufacturing processes, torque, gear ratio, and control. Students will be able to use the buttons, joystick, program-specific movements, modify the position of the motors, and craft final positions for Braccio ++.



What are the projects?

In contrast with the lessons (that focus on the separate components of Braccio ++), the projects integrate the components to the whole assembly parts of the arm. Students apply what they learned during the lessons and build their knowledge on how the assembled Braccio ++ works.

Do I get access to the classroom with the Braccio ++?

Yes, just like the rest of our Arduino Education solutions, Braccio ++ provides you access to the Arduino classroom platform.

How do I access the online content?

You can access the course content by registering the kit. Follow the instructions printed on the paper tray of the box. After signing in to Arduino, you will be asked for the activation code which you can also find in the box.

Once the kit is registered, you can access the Braccio ++ online course anytime from your profile menu or by going to braccio.arduino.cc.

What does educator access look like?

Educators are provided with access to teacher content. This includes a description of the concepts covered and content included in the kit, as well as teacher notes.

I forgot my Arduino account password, how can I recover it?

You can reset your password [here](#) by submitting your username or email address.

What are the teacher notes?

Braccio ++ is designed to provide an in-depth step-by-step learning experience. The teacher notes provide guidance to teachers implementing the lessons. In the teacher notes, you'll find extra information in relation to the lessons, activities, and exercises, as well as tips and ideas on how to enrich your students' learning experience.

The content inside the teacher notes focuses on two main topics:

1. They provide the solutions for the activities and challenges suggested in the lessons.
2. They provide interesting topic facts or tricks that teachers may find interesting and useful for the class. For example, how to use the libraries and how to troubleshoot.



Are the teacher notes visible to students?

The teacher notes are only visible to the users that selected the educator role when activating their kit, and will not be visible to students. Educators can enable the teacher notes by clicking on the eye icon in the bottom right corner of the screen.

EDUCATOR & STUDENT ENROLLMENT

How do I give other educators access to the online platform?

To give other educators access, go to classroom.arduino.cc and set up a classroom. Once your classroom is set up, go to the *Members* tab to **Add** any number of educators. All educators you invite will immediately get student access to online courses associated with your classroom. Any number of educators can access the online platform using the classroom system.

What is the role of the admin vs. the teacher?

When enrolling educators into your classroom, you can select whether they should have the *Admin* or the *Teacher* role. Both roles have access to the educator version of the online content with teacher tips, workbooks, etc. Additionally, *Teachers* can invite and remove students, and invite other teachers to join the classroom. *Admins* can do everything a teacher can, plus invite other Admins, remove any educator, edit classroom settings, and disband the classroom. When you set up a new classroom, you automatically become its Admin.

How many educators can access the online platform?

Go to classroom.arduino.cc and set up a classroom. Once your classroom is set up, you can go to the *Members* tab to **Add** any number of educators. All the educators you invite will immediately get educator access to online courses associated with your classroom, with teacher tips, logbooks, etc.

Can I remove educators from my classroom?

If you are the admin of the classroom, you can add and remove educators any time.

I have invited an educator but they didn't receive the invitation. What should I do?

Firstly, ask them to check their spam folder. If the invitation is not there, remove them from the classroom list and add them again. If their invitation still doesn't arrive, ask them to go to classroom.arduino.cc, where they can log in and see your classroom and its associated courses.



How do I give my students access to the online platform?

Go to classroom.arduino.cc and set up a classroom. Once your classroom is set up, go to the *Members* tab to **Add** any number of students. All students you invite will immediately get student access to online courses associated with your classroom.

Can I remove students?

Any educator can remove students at any time by navigating to the *Members* tab in your classroom. Select the students you want to remove, and click **Remove**. When you remove a student, they will immediately lose access to online courses associated with your classroom.

My students can't access their email or don't have an email address. How do I invite them?

If your students can't access their email, you can share a classroom code with them. Direct them to classroom.arduino.cc and ask them to **join a classroom** using the code. You can find your classroom code by clicking on the **Add** button in the *Members* tab.

If your students are under the age of 14 and don't have an email address, they should still be able to create an anonymous *Junior account*, using a parent or guardian's email address.

How many students can access the online platform?

Any number of students can be enrolled to access the online platform using the classroom system.

I have invited a student but they didn't receive the invitation. What should I do?

Firstly, ask them to check their spam folder. If the invitation is not there, remove them from the classroom list and add them again. If their invitation still doesn't arrive, ask them to go to classroom.arduino.cc, where they can log in and see your classroom and its associated courses.

When can I enroll students to the platform?

You can enroll students at any time.



SUPPORT

A component is not working, what should I do?

For any questions and support assistance, please contact us at <https://www.arduino.cc/en/contact-us/>

Educators also have access to our self-support feature, which provides access to the help center articles available in the content platform (see the “help” bubble in the bottom right corner).

