



# ARDUINO CTC 101 PROGRAM - FULL

Code: 813747020008



CTC 101 is a modular STEAM program consisting of a toolbox with more than 25 projects and easy to assemble experiments, an online platform, and guided educators support.

## OVERVIEW

Creative Technologies in the Classroom 101, or CTC 101, is Arduino's one-of-a-kind STEAM (Science, Technology, Engineering, Arts, and Mathematics) program.

Tailored for students ages 13 to 17, CTC 101 is the ideal professional development program for educators.

CTC 101 has been certified by the [Finnish Kokoa Education Standard™](#) that guarantees high educational value and robust pedagogical design on global learning.

If you are interested in the CTC 101 program and want to know more about it, please scroll down and sign up for one of our webinars in English, Spanish or Italian.

## What Does It Include?

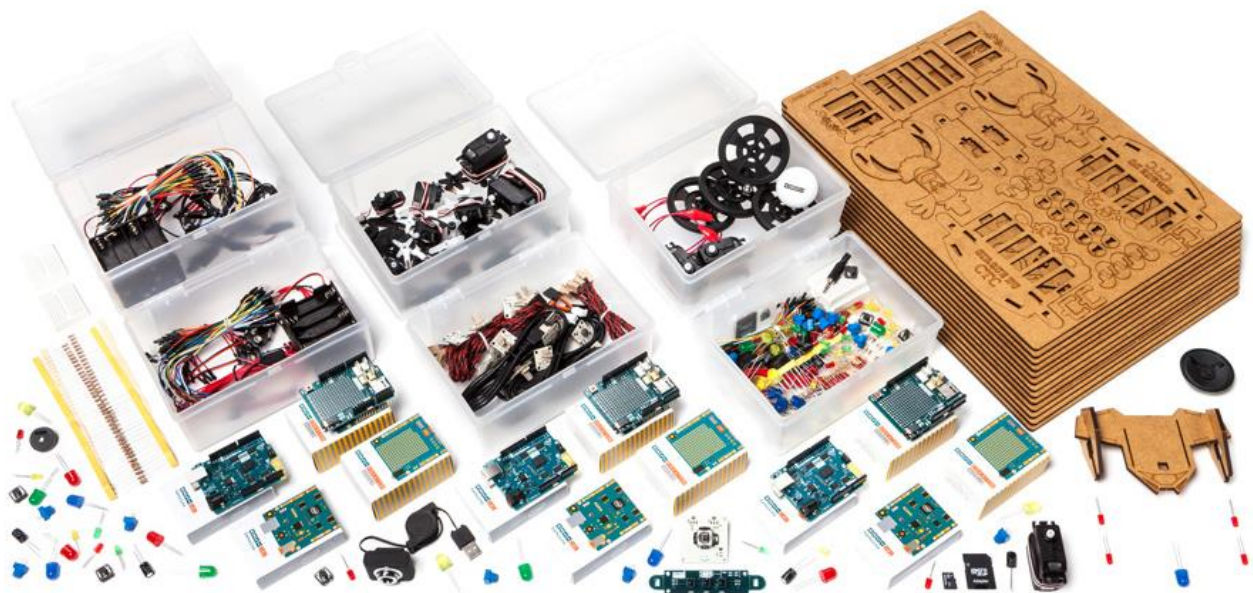
- **TOOLBOX:** More than 700 components for a class with up to 30 students.
- **ONLINE PLATFORM:** Access to the Arduino Education Learning Management System with step-by-step instructions and lessons for more than 25 hands-on experiments based on themed modules.
- **SUPPORT:** Guided educators training, live webinars, and forum monitored by Arduino Education experts.

## Know More

Additional information on our educational programs is available on the [Arduino Education page](#)

You can also download the full brochure [here](#).

## CTC 101 Toolbox



More than 700 components and parts:

- **Six Arduino 101 boards:** one of the most powerful Arduino boards for Education, it includes wireless communication (Bluetooth) and an integrated IMU (Inertial Measurement Unit). They are programmable, able to read inputs (e.g., light on a sensor) and capable to control outputs (e.g., activating a motor).
- **Six Arduino Education shields:** add-on boards that connect to the Arduino 101 and UNO boards to extend their functionality. The Education Shield is a custom-made shield designed by Arduino Education specially tailored for educational purposes to enable quick and easy learning while building projects.
- **More than 10 mini breadboards:** used to make circuits easier to build. They can be either attached on top of the Education Shield or used separately to connect other components.
- **Set of electronic components:** used to create interactive electronic circuits, includes resistors, potentiometers, LEDs, push buttons, capacitors, and diodes.
- **Set of plug and play modules:** sensors and actuators that include the necessary components onboard so they can be connected to the Education shield board directly. Modules include a joystick, light and tilt sensors, and an infrared array.
- **Set of sensors and actuators:** sensors include light, knock, touch / capacitive, and infrared. Actuators include, standard and continuous servo motors.
- **Set of batteries:** includes both 9 V and 1.5 V batteries, and 4-slot and 8-slot battery holders.
- **Media and storage:** includes webcam, SD-card and a speaker. The Education Shield has an SD card reader and an audio connector.
- **Set of cables:** include all the cables needed such as USB cables, jumper wires, module cables, battery snaps, alligator cables and single core wires.
- **MDF parts:** project building involves laser-cut MDF parts. There are more than 10 different projects that can be built with this set of parts.
- **Storage and sorting boxes:** electronic components can be sorted inside boxes according to their functions and sizes. After MDF parts are removed from their frames, they can be stored in the resealable storage bags to keep them organized for later. The sorting box with dividers can be used to organize small components.

## PLATFORM

### Online Platform

Each CTC 101 purchase includes user access to the online platform. Up to 3 educators are granted access, subsequently they will manage student access with a 30 slot limit per toolbox. See demo [here](#).

The online platform runs on an custom-made Learning Management System (LMS), this platform helps students get started with programming, electronics and build fully-functional, interactive projects with the guidance of educators. Currently available in English, Spanish, Italian and Catalan.

Educators are granted access before students so they can prepare and adapt their lesson plans with more engaging and creative techniques so that they take full advantage of the latest technologies to integrate them into their curriculum.

The content and class dynamics are specially designed to enhance the students' problem-solving and teamwork skills in a collaborative environment.

### Student Activities

- **Module 1:** programming and basic coding.
- **Module 2:** introduces Arduino boards and digital signals.
- **Module 3:** introduces analog signals and serial communication.
- **Module 4:** introduces robotics, power systems and motors.
- **Module 5:** introduces wireless communication via Bluetooth and advanced sensors.
- **Reference section:** extra material and exercises for troubleshooting and further learning.
- **Educators section:** self-administered online training, materials for class preparation, teacher guides and resources.

By the end of the course, the students will have the possibility to prepare and create their own projects and share them with the Arduino Education community.

\* Note that CTC 101 program duration is flexible and based on the amount of lessons the students take per week (two to three lessons per week are recommended). The core content (student learning activities) can take up to 10 weeks to complete while the complete program (with the addition of student projects) can take up to 20 weeks.

## SUPPORT

### CTC 101 Support

Our Arduino Education Team is dedicated to provide support to help educators solve potential challenges while teaching CTC content. We also advise educators on how to guide students through the development of new projects derived from the knowledge gained in the program.

CTC 101 support includes:

- Dedicated online communication from the Arduino Education Team from the start: toolbox purchase advice, online platform access, student enrollment, and further questions regarding CTC 101 deployment in the classroom.
- An onboarding live webinar where educators will be guided through the content and the tools available in the online platform.

Sign up for the upcoming webinar about CTC 101:

- [Webinar in English,](#)
- [Webinar en español,](#)
- [Webinar in italiano.](#)
- Five self administered live webinars with three available booking options per day for educators to ask questions about teacher training, student projects or/and upcoming challenges during the implementation phase.
- Access to a moderated forum where educators share knowledge and experiences with other educators from the CTC 101 program around the world.
- Training completion certificate for educators.

## FAQ

### **CAN AN ORGANIZATION OR COMMUNITY GROUP RUN THE PROGRAM?**

The CTC 101 program is primarily aimed at schools, but any group interested in exploring STEAM disciplines can run it.

### **WHICH CTC 101 PACKAGE DO YOU RECOMMEND?**

If it is the first time that an organization, school, or educator is purchasing CTC 101, we recommend selecting the full-package.

If a school already has a CTC 101 program but the educator has never implemented the program, we recommend you to purchase the training and support packages, either together or separately. If the school wants to run a CTC 101 program and the educator is properly trained, the self-learning package is a good choice.

### **IS IT NECESSARY TO BUY ANOTHER TOOLBOX OR ADDITIONAL MATERIALS FOR THE EDUCATORS TRAINING?**

No, educators will be trained using the same materials that their students will use later on. The CTC 101 toolbox contains all of the materials needed for educators training.

### **WHAT ARE THE MINIMUM REQUIREMENTS IN THE CLASSROOM?**

Schools running the CTC 101 program should have student access to computers with Internet (at least one computer for three students) and the ability to download the required software, a dedicated room that can function as a workshop (or at least a room with tables), and common accessories such as pens, scissors, sticky tape, etc.

Chromebook users need a subscription to run the online editor. To learn more about our chrome app plans for students, click on the following link: <https://create.arduino.cc/plans/chrome-app>

## **HOW EDUCATORS CAN GET AN EXTRA YEAR ACCESS TO THE ONLINE PLATFORM?**

Users receive access to the online platform for a year. Up to 3 educators and 30 students are granted access through accounts that can be activated one time only. Educators can then add students to the platform at any time within that year. There is an additional package (extended access to the online platform) that allows access to another 3 educators and 30 students for an additional year.

## **WHAT IS THE CTC 101 TOOLBOX LIFESPAN? HOW MANY TIMES CAN I REUSE THE TOOLBOX?**

The average lifespan of the components in the CTC 101 toolbox is about 2 years.

## **WHEN DOES THE ONE-YEAR ACCESS TO THE PLATFORM START COUNTING?**

The one-year access starts when you first activate the CTC (input your product key). The year period cannot be stopped and resumed later.

## **DO THE EDUCATORS AND STUDENTS RECEIVE ANY KIND OF CERTIFICATION?**

A certificate upon the program completion is available to download on the platform for both students and instructors.

## **HOW DO STUDENTS AND EDUCATORS GET CERTIFICATES UPON COMPLETION OF CTC 101?**

Certificates are available on the CTC 101 online platform once the program and self-evaluations are completed.

## **HOW MANY STUDENT CONTACT HOURS / SESSIONS ARE RECOMMENDED TO COMPLETE?**

The program is comprised of five modules with five lessons each, making a total of 25 lessons. It is recommended one hour per lesson for a total of 25 hours.

## **IS THERE AN EVALUATION SYSTEM FOR STUDENTS ON THE PLATFORM?**

The CTC 101 program does not have its own evaluation system. Each educator can evaluate their class in the way they consider most appropriate. However, an implementation of the program is recommended through project-based-learning (PBL).

## **HOW MANY STUDENTS CAN USE THE TOOLBOX?**

It includes boards, shields, components and platform access for a class of up to 30 students to work simultaneously in groups in a project based manner. However, we have found that the best results come from students working in groups of 3 to 4 or a class total of 18 or 24 students.

## **HOW MANY ARDUINO 101 BOARDS DOES THE TOOLBOX INCLUDES?**

There are six Arduino 101 boards in the CTC 101 toolbox.

## **WHAT LANGUAGES DOES THE ONLINE PLATFORM SUPPORT?**

The CTC 101 online platform itself is currently available in English, Spanish, Italian and Catalan; more will be added in the near future.

## **HOW CAN THE CTC 101 PROGRAM BE INCORPORATED INTO THE CURRICULUM?**

We have found that schools have used CTC 101 to work cross curricular and involve different subjects that can be introduced while working with CTC 101 program. This approach provides the perfect opening for going into more theoretical and practical depth on a wide range of subjects. Technology, maths and physics are given subjects for the cross curricular CTC 101 approach, but educators are also encouraged to apply associated parts of it to art, woodwork, sewing, civics, language arts, etc.

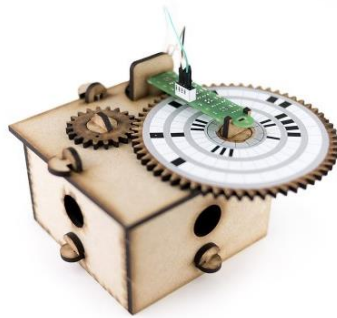
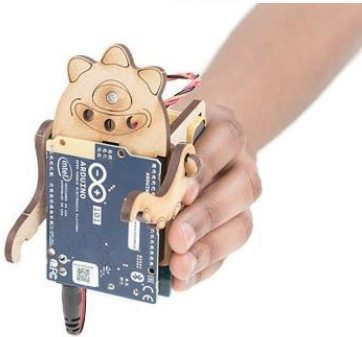


This allows educators to incorporate time from several subjects at their school, and bring the school out of the subject locked activities, and into the creative cross curricular ecosystem.

## **DOES THE CTC 101 PROGRAM HAS BEEN PEDAGOGICALLY EVALUATED?**

The CTC 101 program received a quality certification by Kokoa Agency that evaluates pedagogical products and services from the viewpoint of educational psychology, based on 21st century skills and the Finnish understanding of efficient learning. As a sign of a high quality educative program, the CTC 101 received a Kokoa Education Standard stamp. <https://kokoa.io/products/arduino-ctc-101>





<https://store.arduino.cc/usa/arduino-ctc-101-program/10-17-19>