# Long Courses Offer

This first list of courses includes the offer of courses designed to be developed throughout the holiday season, in the challenges a process will be carried out, from basic concepts, development of exercises, understanding of technical language and a final mini project. Presented below is the offer of courses, schedule included, tentative start date according to student demand, requirements, and general description.

1. Introduction to text programming with C ++
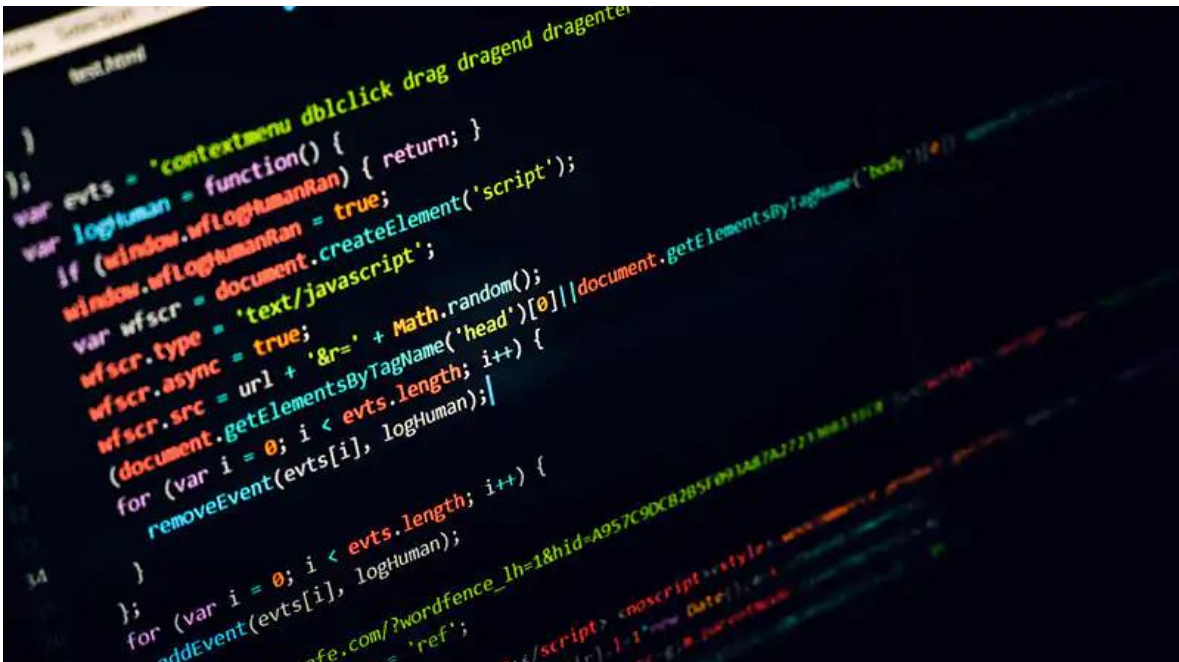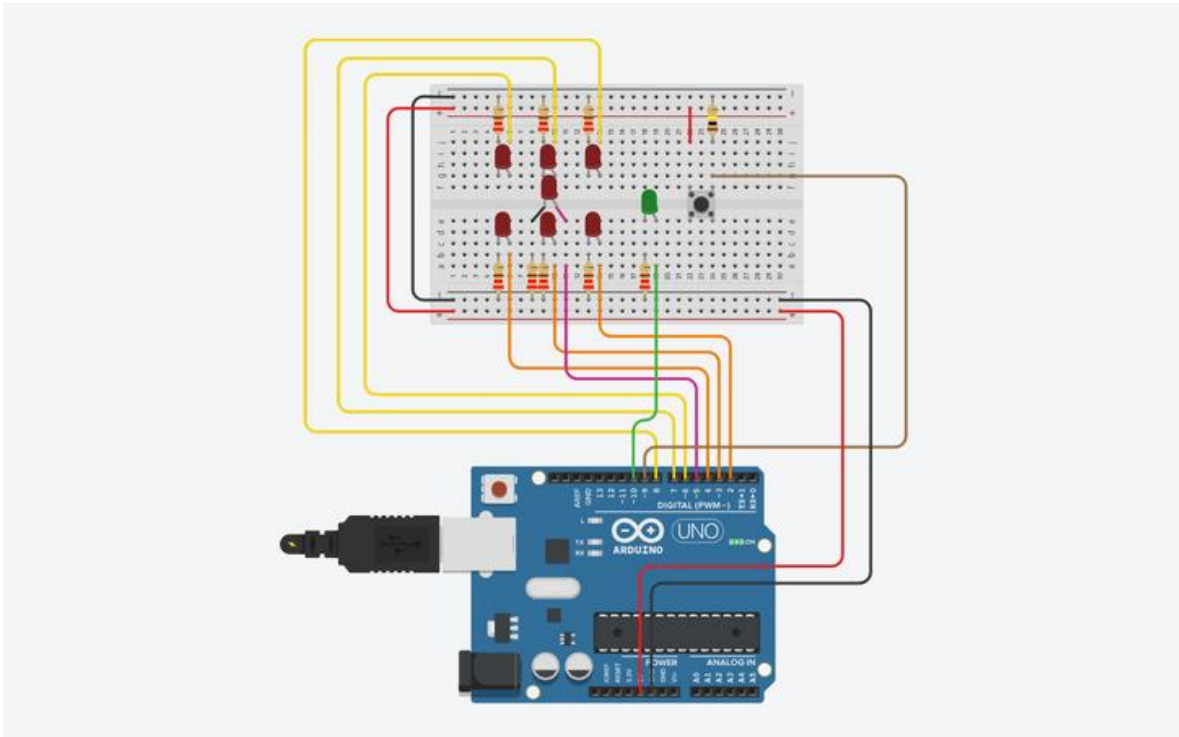

Schedule: Monday to Friday from 8 am - 10 am
Start Date: Thursday 25th of June
Duration: 29 classes
Requirements: Minimum age of 11 years and solid knowledge of programming (Diagnostic Test Applies).

Description: This course is focused on the knowledge of text programming, from basic concepts such as what is a programming language, differences between high and low-level languages, through learning to define the different components of a program. such as variables, functions, loops, conditionals, among others; always thinking about good programming practices such as: right variable names, indexing, comments, etc. The development of the course consists on a theoretical part by the coach, in which concepts are explained, programming examples are made by the coach on the IDE, clarification of doubts and later individual solution of exercises by the student are solved. At the end of the course a short programming project will be developed in which all the concepts learned are involved and it is evaluated if the student acquires the tools and understanding to program in text.

2. Electronics on TinkerCAD + Arduino

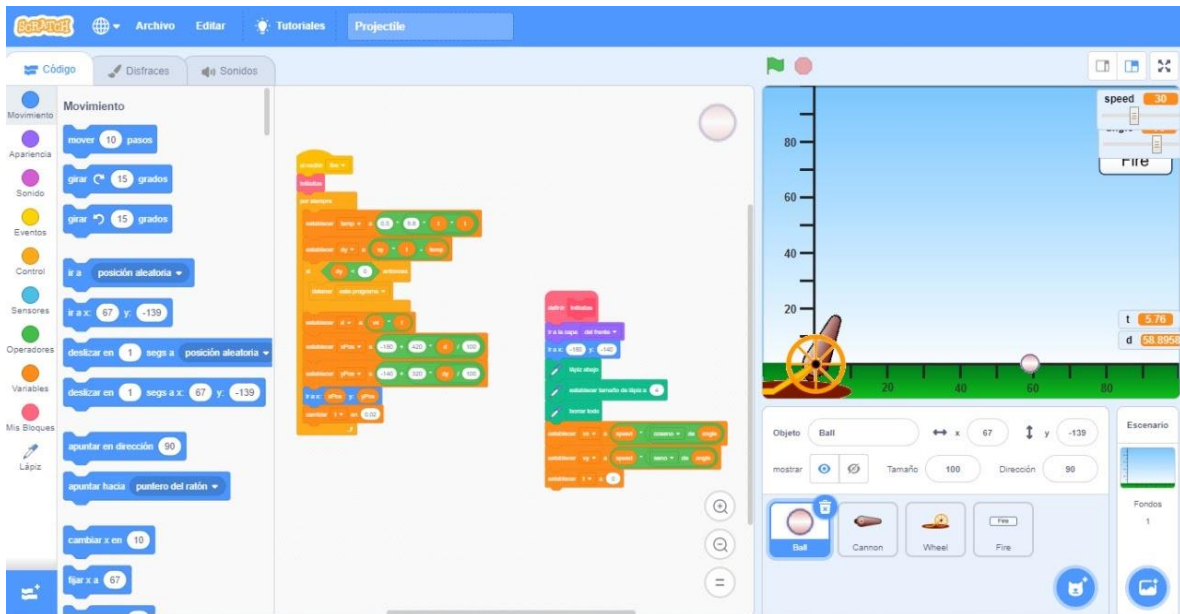**Schedule:** Monday, Wednesday and Friday from 10 am -12 pm
Start Date: Thursday 22nd of June
Duration: 20 classes
Requirements: Minimum age of 10 years and knowledge of block programming.

Description: This course presents an introduction to Arduino programming mainly focused on the handling of electronic elements and their control through this card, all developed in a virtual environment, making it a safe space in which students can learn handling of electronic components without the risk of generating a bad connection and damaging them or affecting their integrity. The first part of the course aims to know the basic concepts of electronics, the different components, their applications and later develop projects by connecting these components to the Arduino board, to perform block programming and see how it works. Additionally, it is proposed to do some equivalences between block programming and how these blocks would be programmed directly by writing text in Arduino, in order for the student to see the tinkercad tool as a test tool where they can develop their projects with complete peace of mind and then pass them directly to a real environment.

3. Project learning in Advanced Scratch

**Schedule:** Tuesday and Thursday from 10 am -12 pm
Start Date: Tuesdays 23rd of June
Duration: 16 classes
Requirements: Minimum age of 11 years and knowledge of programming or handling blocks in Scratch.

Description: This course proposes a project learning dynamic, in which the student takes his previous knowledge in block programming and applies it to very interesting projects focused on the areas of mathematics and science such as: free fall exercises, parabolic throw, Pythagoras, trigonometric relations, circuits, Ohm's law, hydrostatic pressure, an introduction to augmented reality, among others. The idea is to reinforce this knowledge on specific areas using programming.

4. Project learning in Basic Scratch
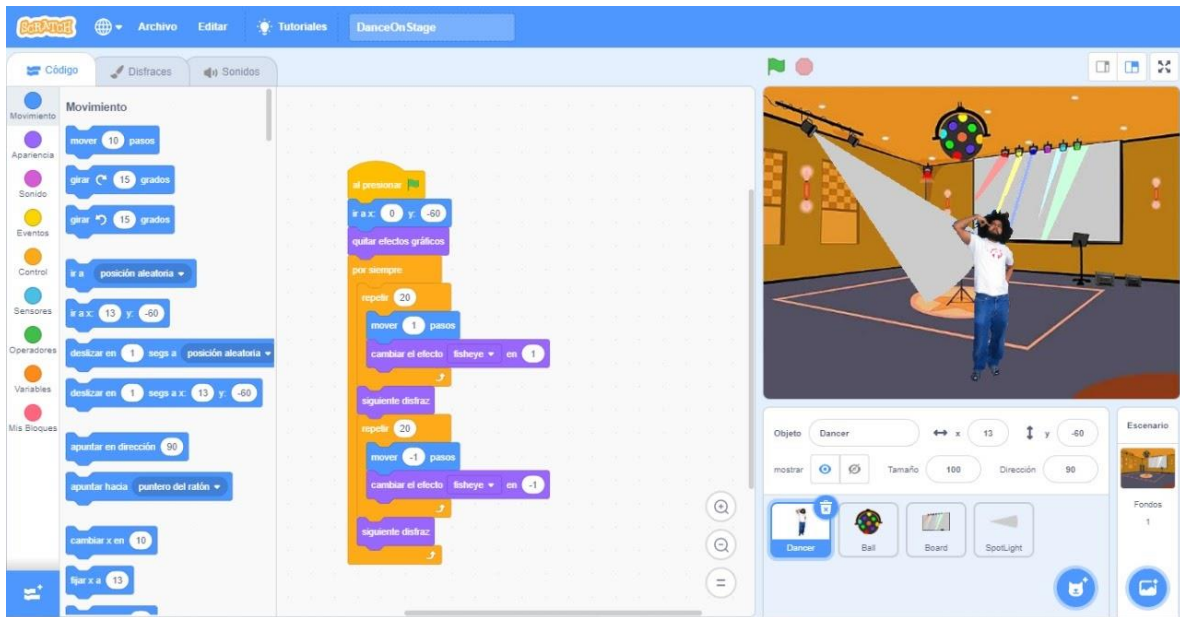
Schedule: Monday, Wednesday and Friday from 2 pm -4 pm
Start Date: Monday 22nd of June
Duration: 16 classes
Requirements: Knowledge in block programming

Description: In this course you will see all the tools and blocks that Scratch brings in order to develop interactive projects, such as character management, layers, games, events, from a freer conception in which the student knows all the tools available to him and decide what to do with them. It is required that the student have previous knowledge in block programming, so that first hand they have clear concepts of algorithms, cycles, conditionals, among others, so that in this way there is a main emphasis on knowing scratch tools such as handling of objects, layers, appearances, movement and drawing, etc; and thus be able to reinforce the basic programming concepts by using this interactive tool.

5. Project Learning in Scratch Junior

Schedule: Tuesday and Thursday from 10am to 12pm
Start Date: Tuesday 23rd of June
Duration: 10 classes
Requirements: Minimum age 6 years

Description: The Scratch Jr course is focused on bringing the little ones closer to a typical block programming interface. The development of exercises or interactive activities is proposed, to attract the little ones to key programming concepts such as algorithms, types of blocks, such as loops, events and waiting. Likewise, the handling of scenarios and objects through messages, sounds and movement on the grid is explored, all to use a fun and attractive environment for programming learning.