



## SYLLABUS 2022 – 2023

Secondary

**6TH GRADE**

### ROBOTICS

Mr. Jeyson Beltrán – [jbeltran@colegiomaya.edu.sv](mailto:jbeltran@colegiomaya.edu.sv)

### LIFE AHEAD METHODOLOGY

Personal growth is assured through the philosophical foundations, and the school's Life Ahead Methodology. The Life Ahead Methodology promotes autonomy, organization, responsibility, and social skills. Its major goal is to produce self-reliant individuals who will assume an ever-greater responsibility for their own learning.

### COURSE DESCRIPTION

This course provides an introduction to robotics for students to awaken curiosity and creativity. Students will develop design skills from basic concepts of physics and mathematics. Students will learn to construct, control and program.

### COURSE OBJECTIVES

- Develop design skills base on Design Thinking methodology.
- Learn about the structure and design
- Identify the main characteristics in a design.
- Develop projects that help understand hydraulic and pneumatic systems applies on robotic.
- Discover the possibilities of electronic from the basic fundamentals through its main components, logic gates and how these influence the development of the robots.
- Develop logic skills through basic programming principles.
- Decode daily process in programing concepts through algorithms.
- Recognize the concepts of: sensor, actuators and controllers.

### CONTENT

- **Mechanics**
  - Design Thinking: understand, explore, and materialize.
  - Machines and mechanisms base on mobile structures.
  - Physics concepts focus on hydraulic and pneumatic.
- **Electronic**
  - Concepts and application of basic electronic components.

- Understanding binary numbers through logic gates.
- **Programming**
  - Algorithmic procedures applied.
  - Flow Charts and programming logic.
  - Block programming.
- **Robotic**
  - Controllers.
  - Actuators.
  - Sensors.
  - Basic Arduino Concepts.

## SKILLS STANDS

- Develop inventive skills through the discovering of new technologies.
- Identify basic electronic components and its usefulness in our daily activities.
- Management of simulation software and tools that helps in the creation of high-quality projects.
- Stimulate the young students mind practicing and researching to improve their logic in problem solving.

## EXPECTATIONS

- Respect classmates and promote teamwork.
- Speak English
- Help foster a study and learning environment where everyone feels free to share their proposals and thoughts.
- Actively participate in class.
- Bring all materials needed for the classes.

## ASSESSMENT

- Projects 40%
- Classwork 20%
- Homework 10%
- Autonomy 10%
- Creativity 10%
- Participation 10%

### APPOINTMENTS:

If you have any questions, you can request a meeting with the teacher by sending an email to [iamaya@colegiomaya.edu.sv](mailto:iamaya@colegiomaya.edu.sv) or calling 2316-7800.

For further information, we invite you to visit us at:



[www.colegiomaya.edu.sv](http://www.colegiomaya.edu.sv)



[/colegiomayadeelsalvador](https://www.facebook.com/colegiomayadeelsalvador)



[colegio.maya](https://www.instagram.com/colegio.maya)