

Young Engineers – Robo Bricks

- **Target Audience: 4th & 5th grade students and/or 3rd graders who have graduated from one of the Young Engineers programs.**
- **Up to 16 students in a course**
- **Course Duration: 60 min / 90 min.**

The course objective is to introduce the students to theoretical and practical aspects of the fields of Technology, Software Engineering, Math and Entrepreneurship.

The course develops algorithmic thinking and program implementation, using the LEGO® WeDo graphic programming. During each lesson, students will build a robot using LEGO® parts and program it according to the required functionality. Most programming tasks will be performed using English terms. The course objective is achieved when the students design a software and mechanical engineering project, study its market and use rhetorical methods to make a successful presentation to investors.

Main Topics:

- Utilizing Young Engineers Spiral Method, the introduction to the world of robotics will be based on implementing all the mechanical engineering knowledge acquired in previous programs.
- Software and Mechanical Engineering principles: Algorithm planning, formulation of pseudocode, flow charts, We-Do Programming, different output implementations, different input implementations, loops, multi-threads, keyboard operations, sensor implementations, calculation commands.
- Introduction to Entrepreneurship: Market study, product page, how Google works, Microsoft Power Point, rhetorical methods.



Program Objectives:

- Developing algorithmic thinking.
- Learning software engineering English terminology.
- Develop procedural thinking
- Develop self-confidence and a sense of self-efficacy.
- Submitting a final project.
- Developing presentation skills and nurture the rhetoric capabilities.
- Developing the following 21st century skills:
 - Working in teams efficiently and handling challenges in teams.
 - Computer orientation.
 - Acquiring information system and media literacy.
 - Develop High-Order-Thinking with an emphasis on critical and creative thinking.

Theme:

- Gadgets and games.
- Robots from various fields executes different tasks.

