ARMATH *ENGINEERING LABS*

A PROJECT BY THE UNION OF ADVANCED TECHNOLOGY ENTERPRISES ARMENIA

Grant Thornton is project Advisory Partner

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ARMATH profile and mission to the world

ARMATH MISSION: Empower younger generation with skills and mind-set for the economy of the future by encouraging and unlocking engineering and creativity talent.

Program objectives

- Support technological sector growth and expansion of tech solutions' applications in other sectors of economy
- Promote the entrepreneurial culture, innovative and engineering mindset
- Constantly improve technological education curriculum Guide the professional orientation of students towards innovation and STEM

Program concept

- Engineering club-laboratories for afterschool classes
- Accessibility for anyone at aged 10 to 18

SUCCESS STORY

- Over 250 engineering laboratories operate in Armenia and Georgia.
- Over 6500 students are involved in the programs.
- Kids aged 10-18 are introduced to science, technology, engineering, and math education through interactive after-school classes, exciting competitions, innovative camps and more.

Project result

- 84% of total graduates admitted to universities.
- 39% of total graduates worked and studied at the same time, out of which 74% worked in tech sector.
- 12% of total graduates founded start-ups.

The program received WITSA recognition.

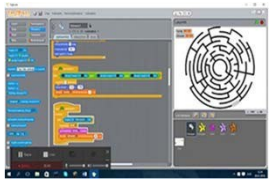
Armath has growing global interest for implementation with different institutions in Spain, Ethiopia, Russia, Kazakhstan, India and Dominican Republic etc.

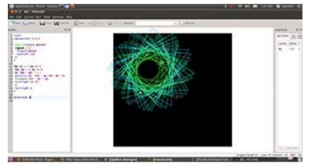
The methodology and curriculum

Methodology

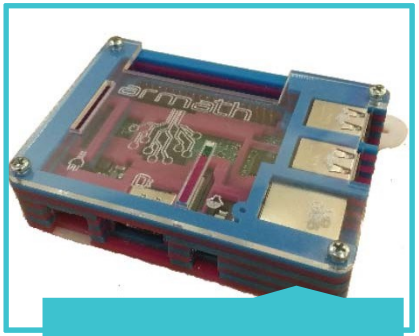
- Groups of 12 to 17 children; on average 3 sessions per week, 2 hours per session.
- The curriculum is based on advanced learning methodologies and tools.
- The labs aim to take the form of leading research and education institutions in the fields of physical sciences and engineering.
- The comprehensive engineering education takes the children from basic programming to robotics & production in an explorative & creative environment.

Curriculum components	Content
1- BASIC PROGRAMMING & ANIMATION	• Programming Basics: object oriented programming, parallel programming, graphic user interface and animation development. • Visual programming environment, toolkit, games, animated stories, interactive art.
2- MICROCONTROLLER PROGRAMMING & ROBOTICS	• Robotics basics • Solving automatic tasks using microcontrollers • Using visual programming languages then shifting to modern scripting and programming languages
3- 3D MODELING	• Building 3D models of any object, graphic and textual information using cad programs. • Using visual programming languages then shifting to modern scripting and programming languages
4- UAV & CONTROL SYSTEMS	• Control Systems basics • Piloting of fixed wing multicomputer UAV • Technical Maintenance • UAV Modeling



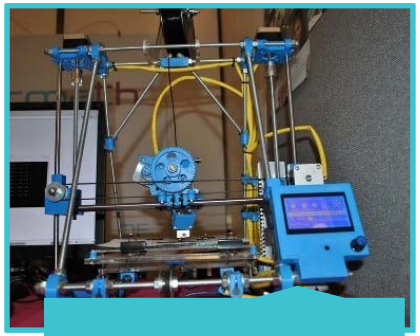


Equipment and toolkit of the program

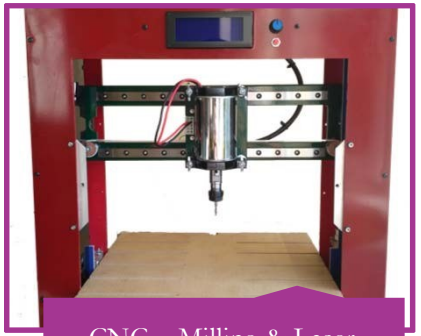


Mini Computers

SERob Robotics Kit



Educational 3D Printer



CNC – Milling & Laser Cutting Machine

Toolkit	Description
Armath operational system	• Armath PI is based on the Linux/Debian Raspbian-stretch operational system. This operational system was created for Armath engineering laboratories by the consortium of Companies - Nairi.
Appointee 3D Printer	• Lender appoints an administrative receiver Making a three-dimensional object from a digital model makes it possible to virtually create objects of any shape. Students can model and print parts to assemble new 3D printers, to fabricate boxes for mini-computers that can be used for other projects, etc.
Director's powers Computer Controlled CNC devices	• Receiver takes control of company. Directors continue in office but powers cease Learning to model and print on advanced computer controlled CNC devices, gives students the opportunity to get acquainted not only with programming, modeling, and engineering basics, but also with the production process.
SERob Robot Kit	• School Educational Robotic Kit "SERob" is designed as a cost effective tool to teach school-aged children the basic principles of mobile robotic systems as well as facilitate the development of applications in amateur robotics clubs.
Mini-computers Aygestan G	• The computers are compact, lightweight and universal. They can use regular TVs as monitors and can be connected to the Internet /LAN, Wi-Fi/.
Aghues	• Aghves is a visual programming environment and a toolkit, that lets kids make games, animated stories, interactive art, as well as share their creations with others on the Net. It is enhanced with modules that support sensors, motors, and robots board. The underlying program is an adaptation of the Scratch environment, developed by MIT.
Kria	• Kria is an adaptation of MIT's Kturtle, an educational programming environment Kria is suitable for teaching kids the basics of math, geometry and programming. One of the main features of Kria is the ability to translate commands into the native language of the programmer.

Your ARMATH PROGRAM

Generic program offers

Status	Scope	Fee structure	Other component of partnership
Basic	• Scratch (2D animation) + Software and Education Methodology • K-Turtle + Methodology • Basic Programmable Robot • Training of the future coaches	• Licence fee per Lab (conditional to number of Labs) • Training fee for the coaches • Equipment costs	• Selection of coaches • Quality control and assurance • Events and competitions • Web platform access • International team assignments
Advanced	• Software and Education Methodology • Electronic Lab • Advanced Programmable Robot • Training of the future coaches	• Licence fee per Lab (conditional to number of Labs) • Training fee for the coaches • Equipment costs	• Selection of coaches • Quality control and assurance • Events and competitions • Web platform access • International team assignments
Expert	• Software and Education Methodology • Laser and CNC Machines • 3D modeling and prototyping • 2D and 3D animation • Training of the future coaches	• Licence fee per Lab (conditional to number of Labs) • Training fee for the coaches • Equipment costs	• Selection of coaches • Quality control and assurance • Events and competitions • Web platform access • International team assignments
Unmanned aerial vehicle (UAV) Software and Education Methodology	• Methodology • Equipment • Training of the future coaches	• Licence fee per Lab (conditional to number of Labs) • Training fee for the coaches • Equipment costs	• Selection of coaches • Quality control and assurance • Events and competitions • Web platform access • International team assignments

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For questions and your special offer, please contact:

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