



"ARMATH" PROJECT EVALUATION OF THE RESULTS

The Union of Advanced Technology
Enterprises (UATE) NGO

December 2022



Year 2022;
631 engineering
laboratories in
Armenia, Artsakh,
Georgia, and
India

About 17000
students get free
engineering
education.

Summary of the "Armath" project

Since 2011 the UATE undertakes the mission to establish the Armath Engineering Laboratories educational program through multiplying engineering laboratories, technical education base, a global network of students. UATE has also launched the process of exporting the Armenian model of technology education all over the world.

At Armath Engineering Laboratories kids aged 10-18 are introduced to science, technology, engineering, and math education through interactive after-school classes, exciting competitions, innovative camps and more.

Our young engineers are given the opportunity to design, build, test, and improve their own creations in a safe and fun environment while making new friends and creating startups.

"Armath" Goals

01

Introducing STEM to children

02

Promotion of professional orientation

03

Fostering entrepreneurial culture and engineering mindset

04

Encouraging teamwork

05

Encouraging innovation and critical thinking

06

IT profession advertising

07

Continuous improvement of technology education curriculum

08

Equal opportunities for all children in high-tech education

Summary of the "Armath +" program

The development and expansion of the "Armath" program

The main target segment are the students of the age group of 15-17 and older who have attended or are attending the "Armath" engineering laboratories.



"Armath" extension



- "Armath in the sky" UAV laboratories,
- Radio electronics, printed circuit board design,
- Artificial intelligence, machine learning and deep learning,
- Augmented and Virtual Reality (AR/VR)
- Agrotechnology

Main objectives of the project

Obtaining theoretical knowledge of the operation of unmanned aerial vehicles, UAV design and manufacture, maintenance, management.

Applied in:

- Civil
- Military

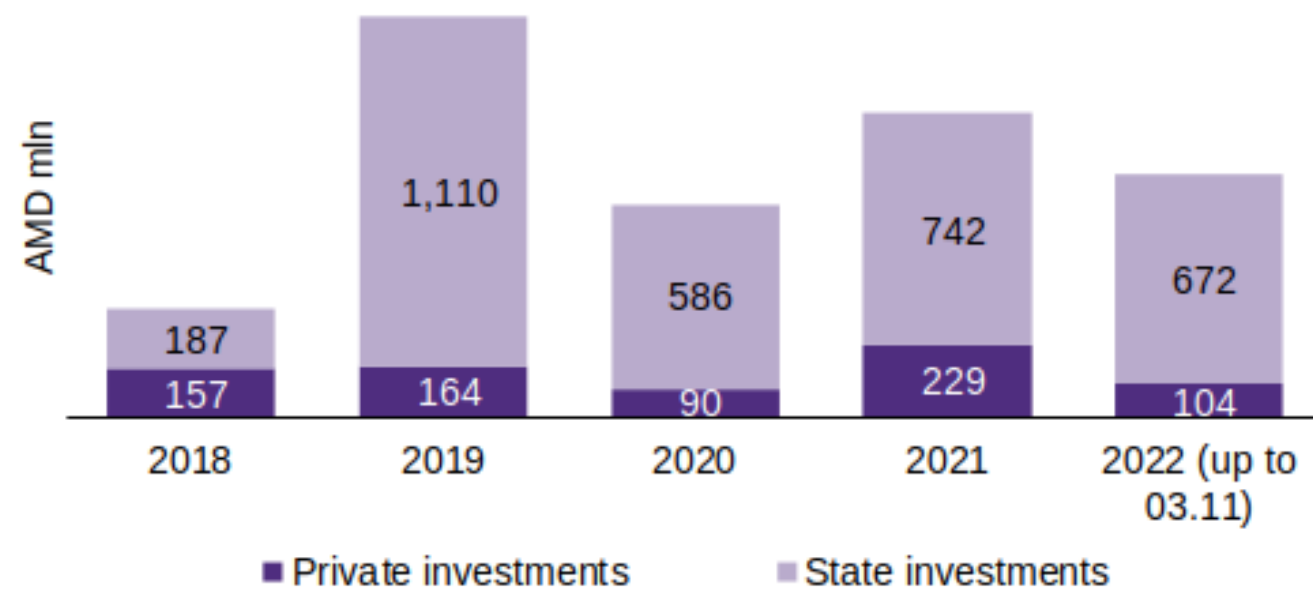
Year 2022;
13 UAV educational labs
11 in 9 regions of Armenia, 2 in Artsakh.
240+ students studying.

With addition components like:

"Armath" Academy
"Armath" STEAM
"Armath" Expansion
"Armath" alumni

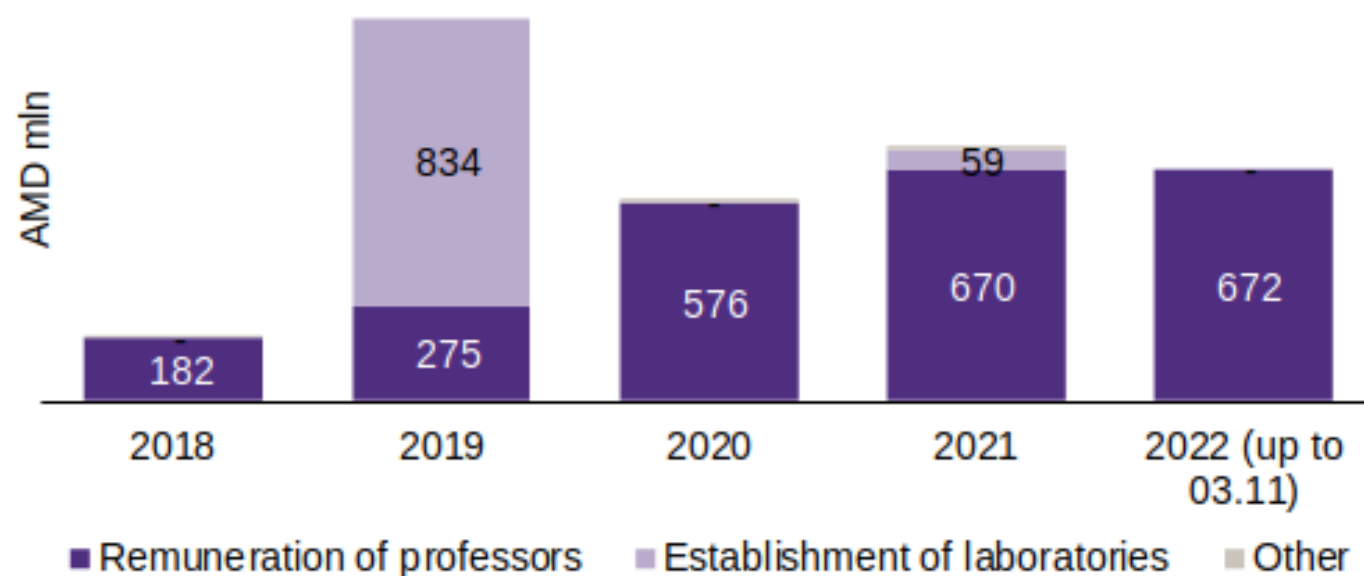
Project investments and results

The structure of investments made within the framework of the program during 2018–2022

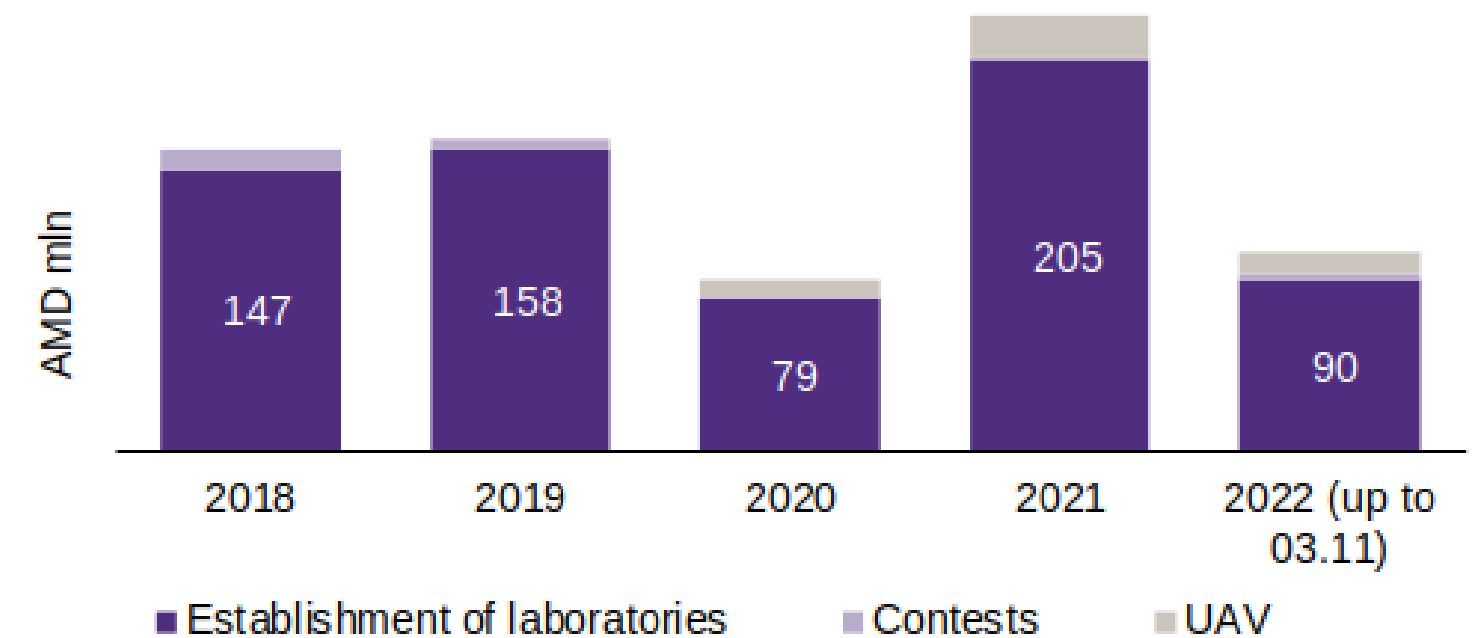


The property acquired at the expense of investments is the balance of the school or other educational institution where the "Armath" laboratory is located. Therefore, the implementation of the "Armath" program is aimed at the **re-equipment and development** of the school itself, while the role of the school may weaken in the case of the creation of parallel buildings.

The structure of state investments made within the framework of the program during 2018–2022

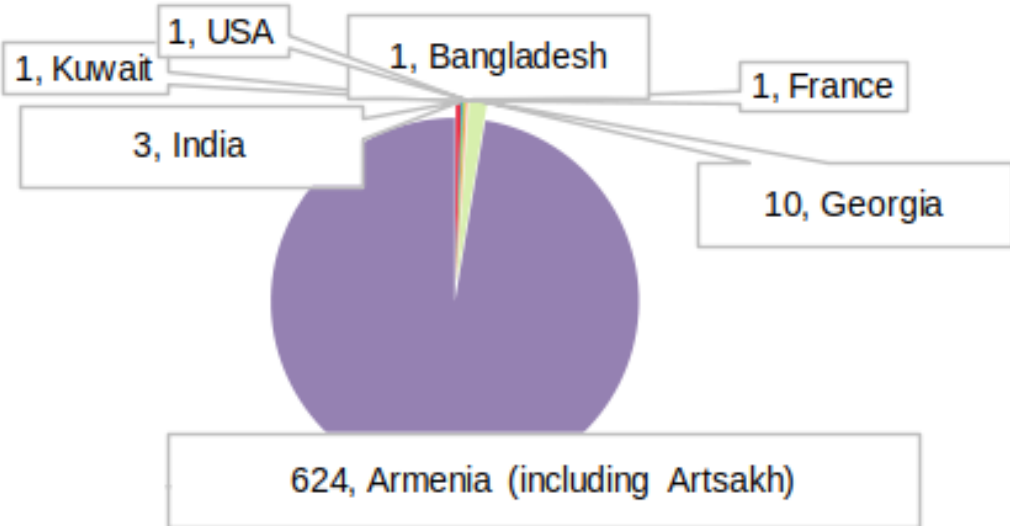


The structure of private investments made within the framework of the program during 2018–2022

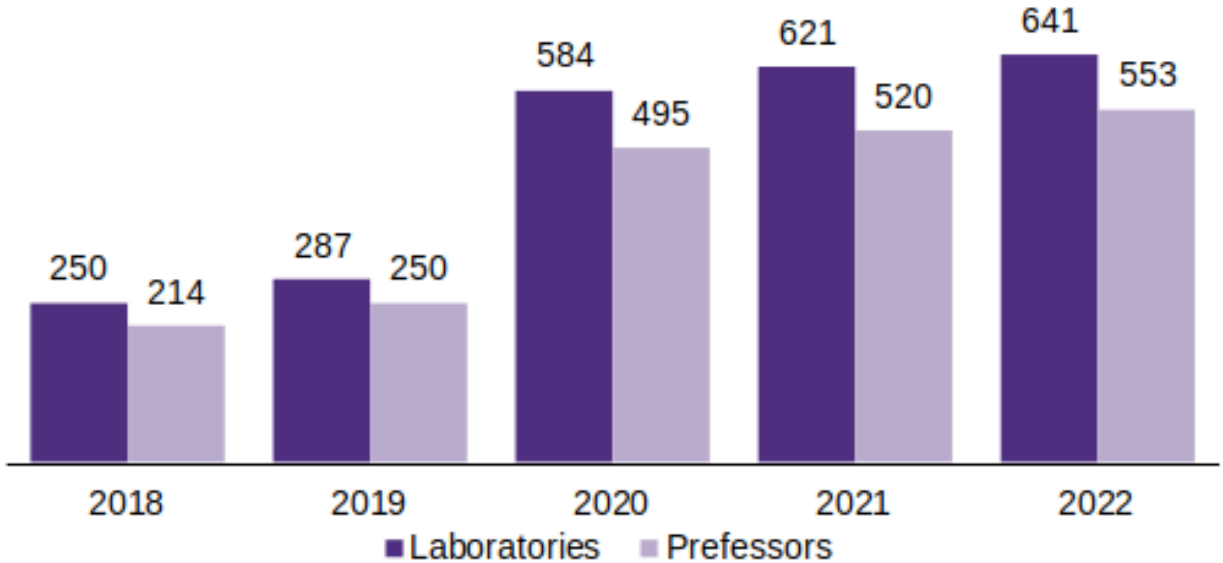


Project investments and results

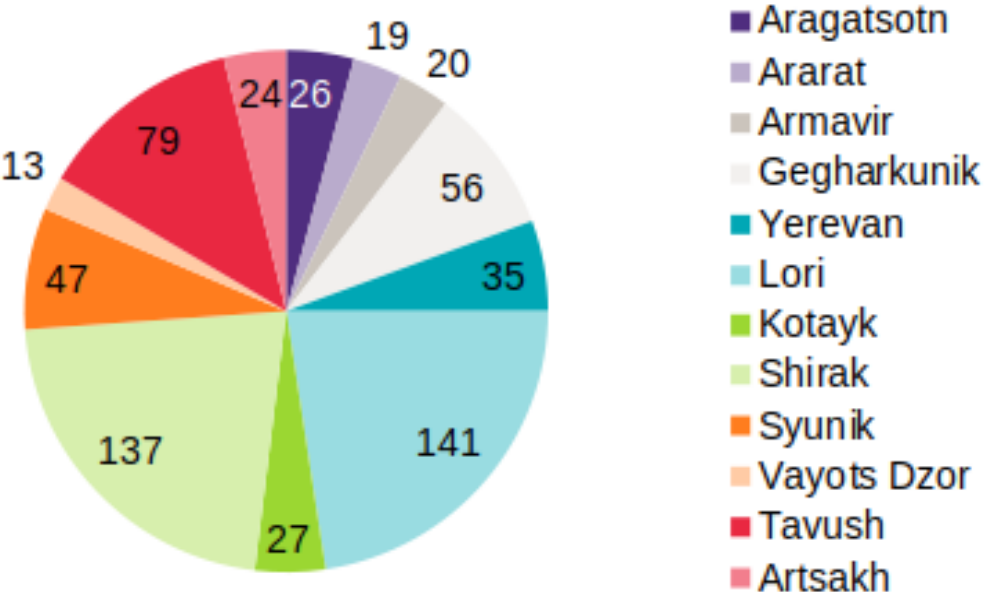
The number of engineering laboratories and coaches in 2018–2022



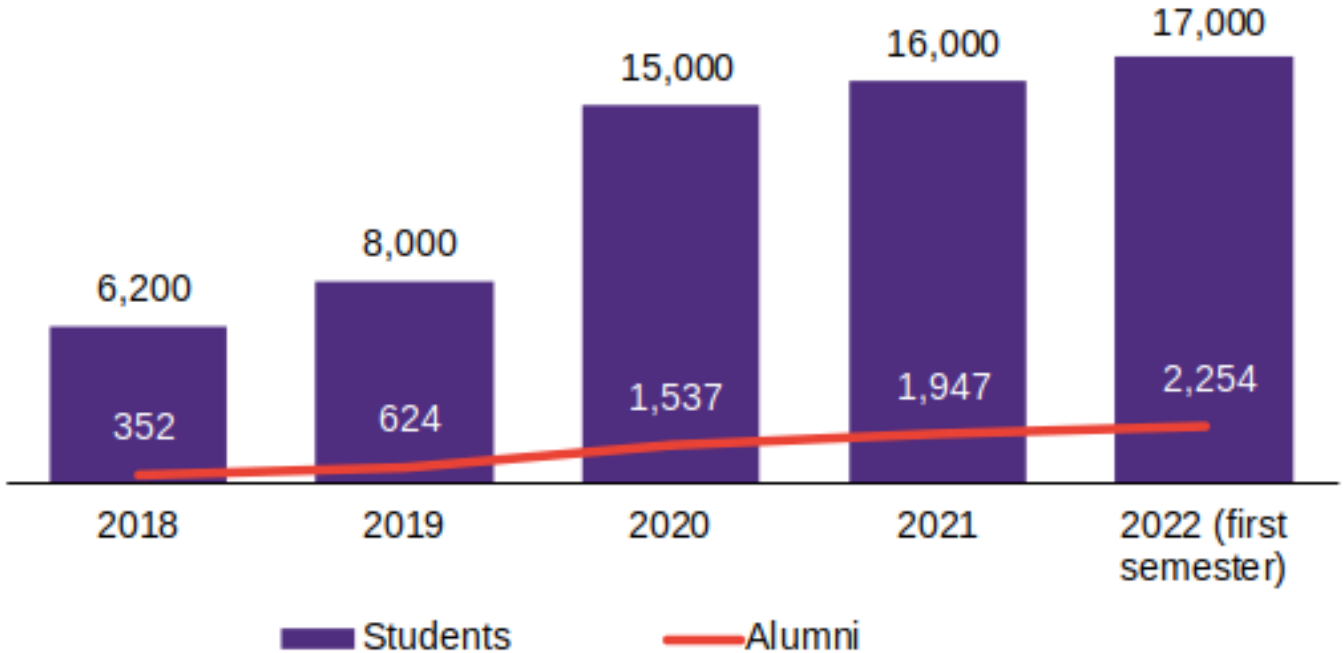
Distribution of the number of engineering laboratories by country as of the end of 2022



The distribution of the number of engineering laboratories by regions of Armenia, the capital and Artsakh as of the end of 2022

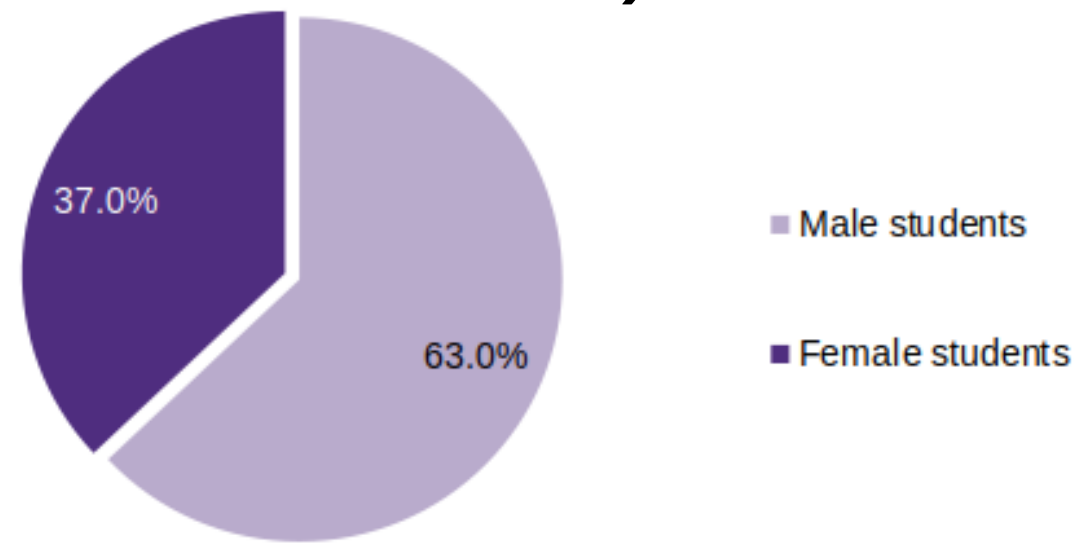


Number of students and graduates of the program between 2018–2022

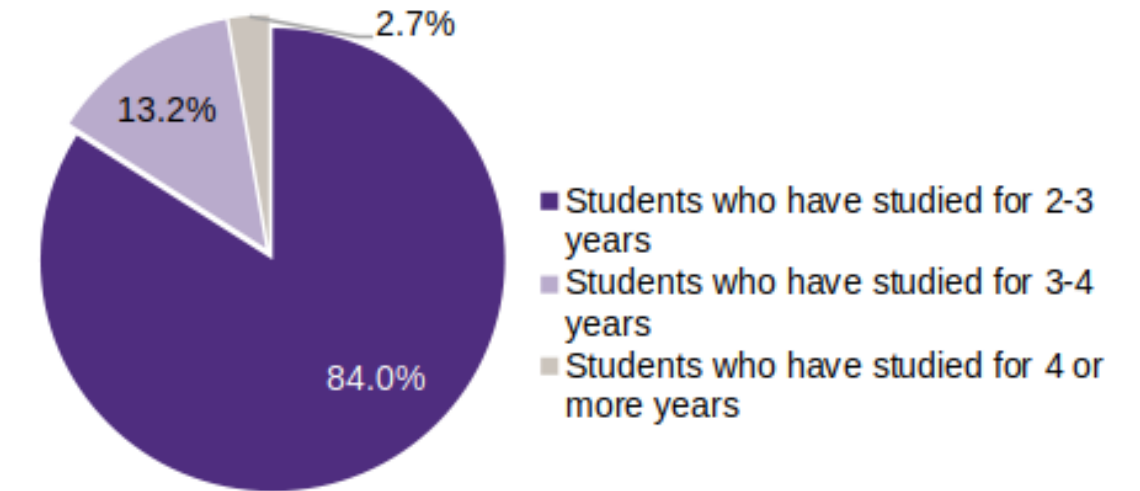


Participant survey analysis

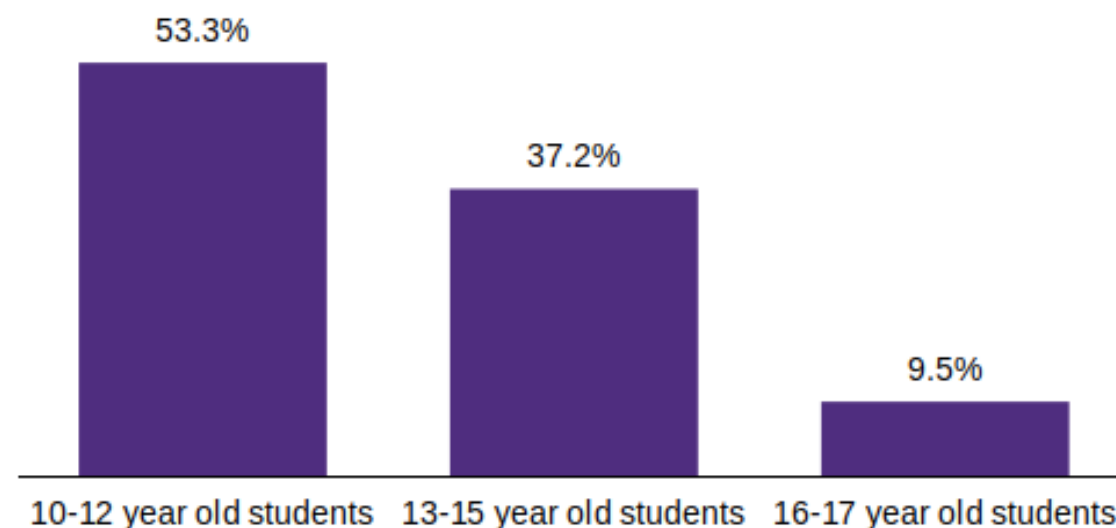
The distribution of students who have studied for 2 years and more according to the number of years studied (results of the survey of the second semester of 2021)



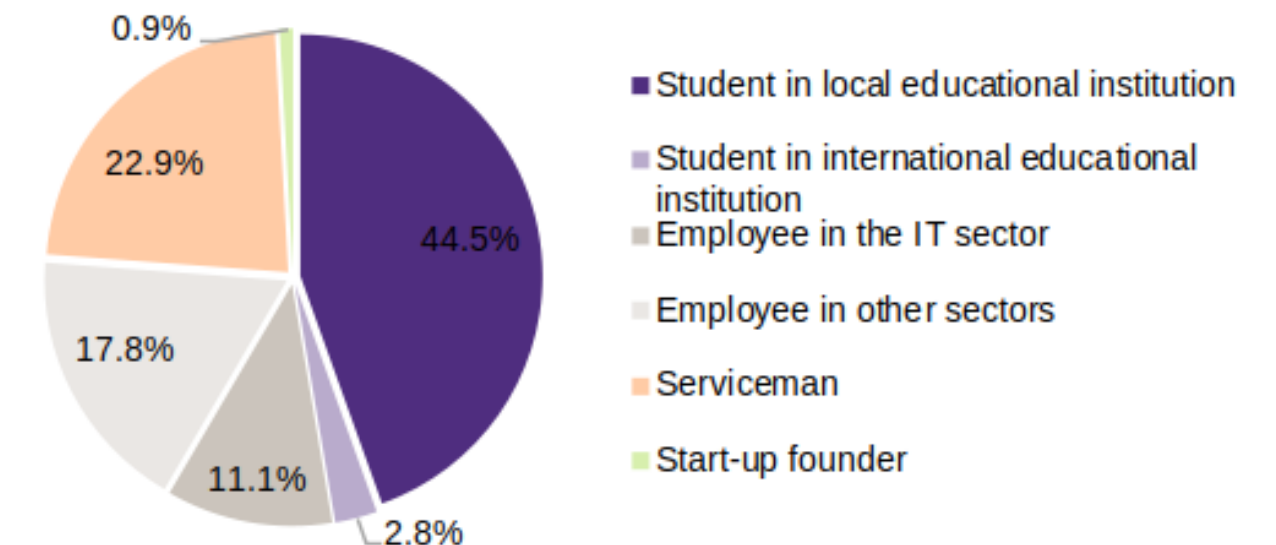
Distribution of students by gender, according to the results of the survey implemented in the second semester of 2021



The distribution of graduates in the groups of the interviewed coaches according to the type of the accepted educational complex (results of the survey of the second semester of 2021)



Distribution of students by age, according to the results of the survey implemented in the second semester of 2021



Evaluation of project results



Results evaluation criteria

- Assessment of regional development
- Evaluation by project objectives
- Socio-economic assessment
- Comparative assessment in the international competitive field

Assessment of regional development

- Of the 624 engineering workshops operating in Armenia and Artsakh, only 35 are in Yerevan.
- About 90% of them study in the workshops of RA marzes.
- When creating new workplaces, border zones are in the center of attention.

Evaluation of project results

Evaluation by project objectives

Introducing STEM to children

- More than 17000 students studying in the engineering laboratories of Armenia, Artsakh, Javakhk and other countries in 2022.
- Labs being integrated into schools instead of being separate structures.

Fostering an entrepreneurial culture and engineering mindset

- More than 40 of the 2021 graduates have founded start-ups, and almost 8% have immediately started working in the IT sector.
- Students learn programming languages, engineering modeling, thanks to which they participate in various competitions
- "Armath" Academy, an acceleration program supporting start-ups at various stages of development.

Promotion of professional orientation

- With labs being integrated into schools students have more realistic expectations and understanding in their profession choice.

Encouraging teamwork

- In almost all phases of the project, students work in teams
- Participation in competitions is also mostly team-based

Evaluation of project results

Evaluation by project objectives

Encouraging innovation and critical thinking

- It is planned to initiate and expand various innovative directions: radio electronics, print design, artificial intelligence, machine learning and deep learning, augmented and virtual reality, agrotechnology.
- 13 "Armath in the Air (Armath UAV)" laboratories are currently launched, planning to increase to 45 by 2025.

Continuous improvement of technology education curriculum

- The new STEM curriculum of the "Armath" engineering laboratories has been handed over to the Ministry of ESCS as the content of project based education.
- Methodological manuals are continuously created and distributed by the "Armath tech-community" group leaders and specialists.

IT profession advertising

- Exhibitions, camps, competitions are organized
- Internal "Armath talks" format discussions take place
- More than 2,500 articles, more than 100 videos, and a large network of UATE

Equal opportunities for all children in the high-tech education

- 37% of participants were female with high activity in competitions and organized events such as "Girls in Tech"

Evaluation of project results

Socio-economic impact assessment

- The economic NPV (Net present value) of the project is estimated at **44.5 billion AMD**
- The economic IRR (Internal rate of return) of the project was estimated at **57.4%**.



According to the given economic evaluation, the program is effective.



Comparative assessment in the international competitive field

Within the framework of the "Armath" project, new laboratories are established in different countries, with the Armenian expertise.

Additionally, "Armath +" program is working on specific & strategic sectors of Armenia (UAV, radio electronics, printed circuit board design) and beyond (artificial intelligence, AR and VR)



This allows us to stress the high importance of "Armath" in the development of high tech industry in Armenia.

Within "Armath" program

Content development

Technical education

- Reformulation of modules,
- Reformulation and full implementation of curriculum components,
- Development of a quality assurance system for laboratories,
- Implementation of a new teacher training (ToT) system,
- Development of a teacher certification procedure,
- Development of Armath package model.

Methodology development

Soft skills

- Cooperation with "Teach for Armenia" Foundation,
- Development of unique soft skills methodology,
- Combination of outcomes with educational state standards,
- Development of a new model of training both for Armenian and International Armath labs,
- Increasing engagement of the regional community.

International Relations (IR) 2022

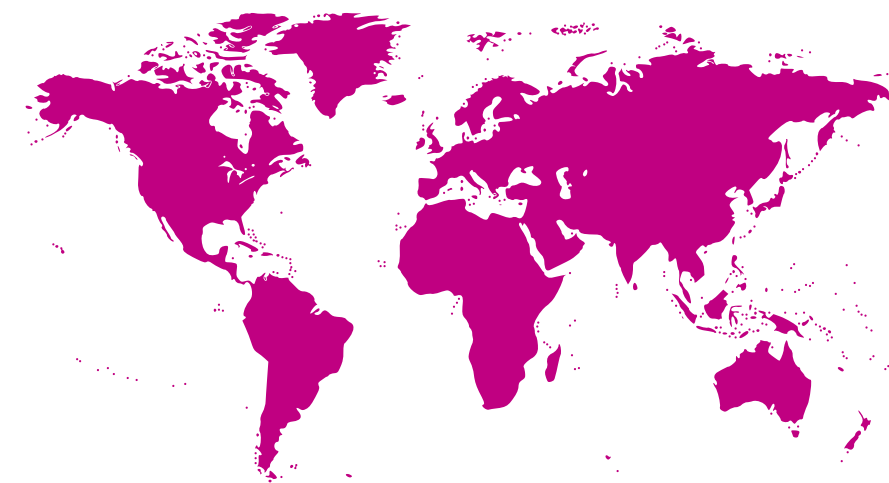
**Export of "Armath"
program = 95. 000 Euro**

**Internationalization and
localization of methodology,
translations, etc.**



Contracts

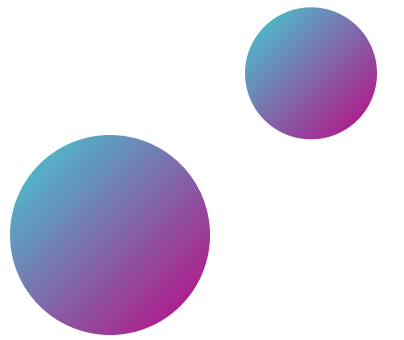
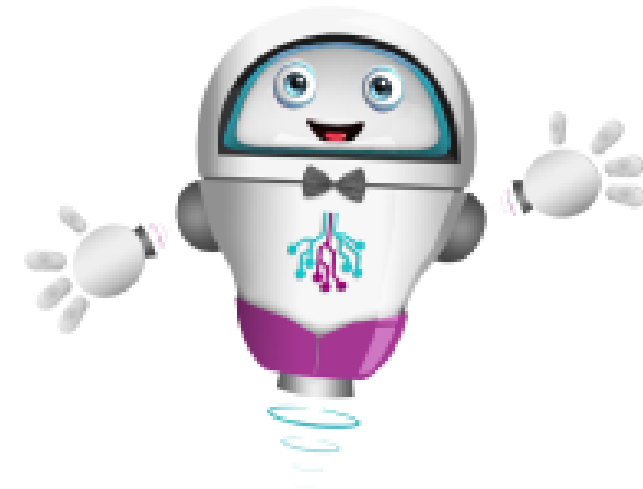
- 1. Bangladesh**
- 2. Kuwait**
- 3. USA**
- 4. France**
- 5. Germany**
- 6. India**
- 7. Georgia**



Negotiations

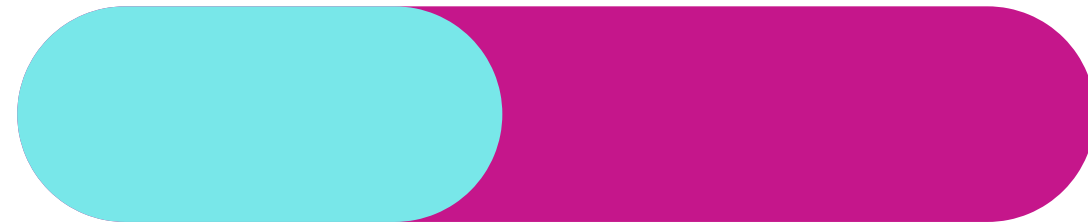
- 1. Russia**
- 2. Ethiopia**
- 3. France**
- 4. Belgium**
- 5. Mongolia**
- 6. Congo, Botswana**
- 7. Eswatini**
- 8. Egypt**

The goal of the "Armath" program



Establishing...

0



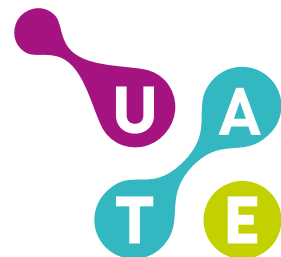
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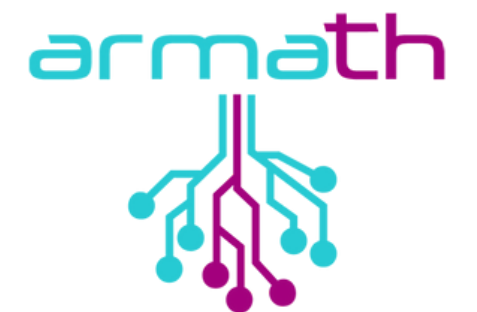
635



FULL BUDGET FOR 1 ARMATH ENGINEERING LABARATORY



UNION OF
ADVANCED
TECHNOLOGY
ENTERPRISES



#	NAME *	QUANTITY	Price thous.AMD	Amount thous.AMD
EQUIPMENT				
1	"Aygestan" mini-computer set	5	176	880
2	Personal computer (for 3D printer and CNC machine)	2	270	540
3	Laptop	1	370	370
4	3D Printer	1	370	370
5	CNC milling and laser machine	1	363	363
6	Robotics educational kit	1	1000	1000
7	Projector	1	280	280
8	Materials for equipment operations	1	25	25
FURNITURE				
9	Computer desks	8	31	248
10	Office chairs	16	26	416
11	Office shelf	1	80	80
12	Robot field	1	90	90
13	Whiteboard	1	35	35
INSTALL AND DESIGN				
14	Equipment installation and configuration	1	84	84
15	Classroom cosmetic repair	1	100	100
16	Representative design	1	200	200
17	6 pcs office bean bags and 5 pcs pillow	1	300	300
ACTIVITIES				
18	Armath Academy	1	250	250
19	TechnoCamp, 9 days, 6 persons	6	840	840
20	Administrative, monitoring and maintenance cost	1	600	600
21	Unexpected expenses 3%	1	212	212
			TOTAL	7,283

Currency:
Armenian
dram

TAX ID:
01226155



PRESENTED BY UATE

Thank You