Request for Quotations (RFQ)

RFQ Number:	ICTEC-2022-001
Issuance Date:	06.01.2022
Deadline for Offers:	24.01.2022, 15:00 Chisinau time
Description:	Supply of a modular production line for mechatronics and Industry 4.0 training
For:	Moldova ICT Excellence Center Project (ICTEC)
Funded By:	United States Agency for International Development (USAID), Contract No. AID-117-A-15-00002
Issued by:	National Association of Private ICT Companies (ATIC)
ATIC Point of Contact:	ioriol@ict.md, Irina Oriol, Deputy Project Coordinator, ICTEC/Tekwill

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Section 1: Instructions to Offerors

Introduction: The Moldova ICT Excellence Center (ICTEC) Project is a USAID program implemented by the National Association of Private ICT Companies (ATIC).
Based on the Year 6 priorities of the Tekwill Project, under the component "Tekwill in Every University" Concept, it is envisioned to improve the universities infrastructure and establish specialized laboratories - this element is proposed to be realized based on the Armenian Experience identifying the most valuable soft/hard assets of the universities (Eg. UTM- engineering for IT and verticals - for eg. PowerTech, FinTech, etc.). One of the promising verticals to apply Tech, Engineering and Making relates to the Digital Engineering Center. Thus, as part of the activity, ATIC requires the purchase of Digital Engineering laboratory equipment for the Technical University of Moldova. The purpose of this RFQ is to solicit quotations for these items.

For more details please refer to Section 3 – Technical Specifications and Annex 1 – Digital Engineering Center Concept.

Offerors are responsible for ensuring that their offers are received by ATIC in accordance with the instructions, terms, and conditions described in this RFQ. Failure to adhere with instructions described in this RFQ may lead to disqualification of an offer from consideration.

1. **Offer Deadline and Protocol**:
   Offers must be submitted **not later than 15:00, local Chisinau time, on January 24, 2022** **Electronic Submission Only:**
   The only acceptable submission method is electronical – via email.
   Any email offers must be sent to the following address:
   to: ioriol@ict.md, Irina Oriol, Deputy Project Coordinator, ICTEC/Tekwill
   cc: llivadari@ict.md , Liuba Livadari, Procurement Consultant

Offers must be submitted in one package in pdf format files, including the Forms A-F and other mandatory documents required by this solicitation documents – details in Section 3 - Technical Specifications. *The Quotation for the requested goods shall follow the FORM F – Financial offer. Shall the offer be sent via several emails due to its volume, please specify in the email title, besides the number of the tender, "Offer Part 1"," Offer Part 2"*

Please reference the RFQ number in any response to this RFQ. Offers received after the specified time and date will be considered late and will be considered only at the discretion of ATIC.

2. **Questions**: Questions regarding the technical or administrative requirements of this RFQ may be submitted **no later than 15:00 local Chisinau time on January 20, 2022 by email to ioriol@ict.md.** Questions must be submitted in writing; phone calls will not be accepted. Questions and requests for clarification—and the responses thereto—that ATIC believes may be of interest to other offerors will be circulated to all RFQ recipients who have indicated an interest in bidding.

   Only the written answers issued by ATIC will be considered official and carry weight in the RFQ process and subsequent evaluation. Any verbal information received from employees of ATIC or any other entity should not be considered as an official response to any questions regarding this RFQ.

3. **Specifications**: *Section 3 contains* the technical specifications of the required items. All commodities offered in response to this RFQ must be new and unused.
   Please note that, unless otherwise indicated, stated brand names or models are for illustrative description only. An equivalent substitute, as determined by the specifications, is acceptable.

4. **Quotations**: Quotations in response to this RFQ must be fixed-price, all-inclusive basis, including delivery and all other costs required in Section 3. Offerors are requested to provide quotations guided by the Quotation format (FORM F) using company's letterhead.

   During the validity of the quotation, ATIC shall not accept any changes in unit prices, due to escalation, inflation, exchange rates fluctuation, or other market factors, after the receipt of the quotation. At the time of Contract award, ATIC reserves the right to increase or decrease the quantity of services and/or goods, by up to a maximum twenty-five per cent (25%) of the total offer, without changes in the unit price or other terms and conditions.

   Currency of Quotation: Pricing must be presented in USD (VAT 0%, and exempt of customs taxes).

   Quotation validity: Offers must remain valid for not less than 60 calendar days after the offer deadline. In exceptional circumstances, ATIC may request Companies to extend the validity of the Quotation beyond what has been initially indicated in this RFQ. The Proposal shall then confirm the extension in writing, without any modification whatsoever on the Quotation.

   Partial Quotes: NOT allowed.

5. **Mandatory documents to be submitted:** Offerors responding to this RFQ are requested to submit the following documents:
   - Application form (FORM A)
   - Letter of Transmittal (see FORM B)
   - Offeror's Summary Sheet (see FORM C)
   - Certification Regarding Responsibility Matters (see FORM D)
   - Evidence Regarding Responsibility Matters (see FORM E)
   - Dully filled in Quotation form (FORM F), in line with the requirements in Section 3;

- In case the Offeror's cost proposal/quotation exceeds the equivalent of USD 50.000, the Offeror shall provide a bank guarantee in amount of 2%. The bank guarantee must be annexed to Cost Proposal/Quotation Form (Template provided).
- Company profile (brief information);
- Copy of Company's Registration Certificate with annex;
- Detailed technical description of the offered goods (including brochure);
- Certificates of quality for the offered goods (where applicable);
- Statement or certificate of origin for the offered equipment;
- A statement whether any import or export licenses are required in respect of the goods to be purchased including any restrictions on the country of origin, use/dual use nature of goods or services, including and disposition to end users (where applicable);
- Confirmation that licenses of this nature have been obtained in the past and an expectation of obtaining all the necessary licenses should the quotation be selected (where applicable);
- Quality Certificate (e.g., ISO, CE, etc.) and/or other similar certificates, accreditations, awards and citations received by the Bidder, if any;
- Accreditations, Markings/Labels, Environmental Compliance Certificates, and other evidences of the Bidder's practices which contributes to the ecological sustainability and reduction of adverse environmental impact (e.g., use of non-toxic substances, recycled raw materials, energy-efficient equipment, reduced carbon emission, etc.), either in its business practices or in the goods it manufactures;
- Manufacturer's Authorization of the Company as a Sales Agent (if Supplier is not the manufacturer);
- Description of warranty arrangements, name and address of the authorized service situated in or in close proximity to the Republic of Moldova (please describe the procedure).
- 2 Reference Letters (proof of satisfactory performance) from Clients in terms of (3) years;

6. **Delivery**: DAP Chisinau. The delivery location for the items described in this RFQ is Chisinau, Moldova. As part of its response to this RFQ, each offeror is expected to provide an estimate (in calendar days) of the delivery timeframe (after receipt of order). Expected delivery – up to 45 calendar days. The delivery estimate presented in an offer in response to this RFQ must be upheld in the performance of any resulting contract.

7. **Customs clearance** of goods shall be done by the supplier: Foreign companies are encouraged to contact a local brokerage company to manage the customs clearance procedure in Moldova (costs to be included in/covered by the quotation).

8. **Source/Nationality/Manufacture**: All goods and services offered in response to this RFQ or supplied under any resulting award must meet **USAID Geographic Code 110** in accordance with the United States Code of Federal Regulations (CFR), 22 CFR §228. The cooperating country for this RFQ is Moldova.

   Offerors may not offer or supply any commodities or services that are manufactured or assembled in, shipped from, transported through, or otherwise involving any of the following countries: Burma (Myanmar), Cuba, Iran, North Korea, (North) Sudan, Syria.

9. **Warranty**: Warranty service and repair within the cooperating country is required for all commodities under this RFQ. The warranty coverage must be valid on all commodities for a minimum of period of 2 years, after delivery and acceptance of the commodities, unless otherwise specified in the technical specifications. At the time that any commodity is transferred to the Government of Moldova/Beneficiary, the ATIC, or another entity within the cooperating country, all rights to warranty support and service shall be transferred with the commodity to that entity's end-user.

10. **Taxes and VAT**:
The agreement under which this procurement is financed does not permit the financing of any taxes, VAT, tariffs, duties, or other levies imposed by any laws in effect in the Cooperating Country. No such Cooperating Country taxes, VAT, charges, tariffs, duties or levies will be paid under an order resulting from this RFQ.

11. **Eligibility**: By submitting an offer in response to this RFQ, the offeror certifies that it and its principal officers are not debarred, suspended, or otherwise considered ineligible for an award.

12. **Evaluation and Award**: The award will be made to a responsible offeror whose offer follows the RFQ instructions, meets the eligibility requirements, : meets or exceeds the minimum required technical specifications, and is judged to be the best value based on a **lowest-price, technically-acceptable** basis.

Evaluation Criteria:

☒ Technical responsiveness to technical requirements (and lowest price);
☒ Company's minimum 3-year experience in the field of supply of similar equipment;
☒ Availability of certificates of quality and origin for the offered equipment;
☒ Full acceptance of the RFQ conditions;
☒ Maximum delivery period not to exceed 45 calendar days upon signature of contract;
☒ Warranty on parts and labor - minimum 24 months.
☒ After-Sales services:
a) Service Center in Moldova or in close proximity to Moldova *(Mandatory information on the Service Center Company name, address, contact person, e-mail, phone number).*
b) Technical Support
c) Brand new replacement if purchased unit is beyond repair (under Warrantee period)
d) Training on operations and maintenance for the beneficiary (to be provided offline by a qualified specialist- at the Beneficiary's premises in Chisinau).
☒ Validity of quotation: 60 calendar days

Please note that if there are significant deficiencies regarding responsiveness to the requirements of this RFQ, an offer may be deemed "non-responsive" and thereby disqualified from consideration. ATIC reserves the right to waive immaterial deficiencies at its discretion.

Best-offer quotations are requested. It is anticipated that award will be made solely on the basis of these original quotations. However, ATIC reserves the right to conduct any of the following:

- ATIC may conduct negotiations with and/or request clarifications from any offeror prior to award.
- While preference will be given to offerors who can address the full technical requirements of this RFQ, ATIC may issue a partial award or split the award among various suppliers, if in the best interest of the Project.
- ATIC may cancel this RFQ at any time.

Please note that in submitting a response to this RFQ, the offeror understands that USAID is not a party to this solicitation and the offeror agrees that any protest hereunder must be presented—in writing with full explanations—to the ICTEC Project for consideration, as USAID will not consider protests regarding procurements carried out by implementing partners. ATIC, at its sole discretion, will make a final decision on the protest for this procurement.

13. **Terms and Conditions**: This is a Request for Quotations only. Issuance of this RFQ does not in any way obligate ATIC or ICTEC Project to make an award or pay for costs incurred by potential offerors in the preparation and submission of an offer.

This solicitation is subject to ATIC's standard terms and conditions. Any resultant award will be governed by these terms and conditions; a copy of the full terms and conditions is available upon request. Please note the following terms and conditions will apply:

(a) ATIC's standard **payment terms** are 100% net 15 days after receipt, installation, testing, training and acceptance of any commodities and/or deliverables and upon submission of payment documents (Invoice). Payment will only be issued to the entity submitting the offer in response to this RFQ and identified in the resulting award; payment will not be issued to a third party.
(b) **Other Payment Terms**: Advance payment allowed up to 20% of the contract amount.
(c) Any award resulting from this RFQ will be **firm fixed price**, in the form of a Contract for goods.
(d) No commodities or services may be supplied that are manufactured or assembled in, shipped from, transported through, or otherwise involving any of the following countries: Burma (Myanmar), Cuba, Iran, North Korea, (North) Sudan, Syria.
(e) Any international air or ocean transportation or shipping carried out under any award resulting from this RFQ must take place on U.S.-flag carriers/vessels.
(f) United States law prohibits transactions with, and the provision of resources and support to, individuals and organizations associated with terrorism. The supplier under any award resulting from this RFQ must ensure compliance with these laws.
(g) The title to any goods supplied under any award resulting from this RFQ shall pass to ATIC following delivery and acceptance of the goods by ATIC. Risk of loss, injury, or destruction of the goods shall be borne by the offeror until title passes to ATIC.
(h) **Penalty for delays: 0.5%** of contract for every day of delay, up to a maximum duration of 1 calendar month. Thereafter, the contract may be terminated (If terminated, any advance payments must be returned to ATIC).

Section 2: Offer Checklist

To assist offerors in preparation of proposals, the following checklist summarizes the documentation to include an offer in response to this RFQ: the list of documents as per *Section 1, p.5 Mandatory documents to be submitted:*

Section 3: Specifications and Technical Requirements

The table below contains the technical requirements of the commodities/services. Offerors are requested to provide quotations containing the information below on official letterhead or official quotation format, guided by the Form F – Quotation Format

Line Item	Description and Specifications	Qty
	Modular production line (MPS) for mechatronics and Industry 4.0 training (miniaturized production line)	**1**
	GENERAL CHARACTERISTICS:	
	• Power supply: 220V, 50Hz.	
	• Dimensions (W x D x H): depends on the type and number of modules/stations included (compact system preferred)	
	• High degree of modularity	
	• Networking of all stations	
	Training domains covered by the equipment:	
	-Mechanical production and automation	
	- Mechatronics	
	-Electric engineering and automatization	
	-Automation Engineering	
	-Control Engineering	
	-Computer Control	
	-Networking of multiple stations, control systems, and I/O units	
	-Programming of industrial touch panels and modern human/machine interfaces such as augmented reality (AR) and web interfaces	
	-RFID network technology, and intelligent IO-Link-based sensors	
	-Internet of things (IoT)	
	TRAINING SYSTEM ELEMENTS:	
	Suggested Stations*:	
	• Loading and detection station	**1**
	• Handling module	**1**
	• Processing and detection module	**1**
	• Transport and sorting module	**1**
	• Transfer and sorting module	**1**
	• Transport and mounting module	**1**
	• Assembly module	**1**
	• Distribution and storage module	**1**
	• Monitoring control module (with touch screen, electrical control unit, button module)	**1**
	Shall the proposed training system consist of a few modules/differently designed modules, the possibility of integrating additional MPS system modules at a later point in time to create a larger network of systems with a more complex process must be ensured.	
	Sensors:	
	• capacitive • inductive • photoelectric • electromagnetic	
	Action elements:	

	• Stepper motors • DC motors • Asynchronous motor • Pneumatic Valves • Pneumatic Gripper • Vacuum pump	
	PLC (in/out modules compatible with Siemens S7 series)	
	Tool kit and Spare parts for sensitive elements within the production line.	**1 (set)**
	Schemes for production line modules assembly included	**1**
	User Guide included: Romanian/Russian and English	**1**
	Software for equipment operation included	**1**
	OTHER REQUIREMENTS	
	Delivery and Installation: Chisinau, Moldova	
	Warranty and aftersales:	
	a) Warranty – min 24 months b) Brand new replacement of items if the items are beyond repair (under warrantee period) c) Training on Operations and Maintenance of the equipment (at the Beneficiary's premises in Chisinau, Moldova) d) Availability of Service Center in Moldova (or in close proximity to Moldova). Mandatory information on the Service Center Company name, address, contact person, e-mail, phone number). e) Technical Support	

*Depending on Manufacturer, the training system stations may be designed differently, but execute the same purpose. The bidder is expected to list and give the detailed technical description of the stations contained by the proposed training system.

The equipment shall be assembled safely and well packed, ready to use, or provided components and accessories to be assembled by the Supplier's delegated staff at the premises of the beneficiary (Technical University of Moldova in Chisinau).

ANNEX 1

Digital Engineering Center Concept

Background

The economic, industrial and technological development of the Republic of Moldova going through processes of Industry 4.0 requires the automatization and robotization of all manufacturing processes and services. The robotization and automatization solutions come with clear and evident improvements in accuracy, efficiency, efficacy, flexibility and significant cost reduction.

Industrial enterprises in the Republic of Moldova, various institutions, companies, state or private organizations, operating nationally and internationally, already have settled various complex production or automation systems that are based on theoretical and practical concepts of robotic and mechatronic systems.

Thus, on the labor market there is an urgent need for specialists in the field of mechatronics, to integrate skills and abilities both theoretical and practical in terms of design, development, programming and use of robotic and mechatronic systems.

Having considered arguments presented above, Technical University of Moldova has initiated the inauguration of Digital Engineering Center (DEC), which will provide solutions, practical and applied expertise in four leading fields of modern engineering: Robotics and Mechatronics, Electronics; Automotive; Virtual and Augmented Reality.

In these conditions, a training laboratory in the field of robotics and mechatronics within the DEC Center, equipped with robotic manipulators and robotic manufacturing lines would expand the professional training of future engineers, graduates of several specialties from Technical University of Moldova, who have tangent with this field.

1. **Stakeholders/partners**

Among the public and private partners of this project can be mentioned: „Steinel Electronic" S.R.L., „Dekart ATM" S.R.L.; „Bucuria" S.A.; CET-2 S.A., „Electrotehnoimport" S.R.L., „Salonix-Teh" S.R.L.; Inther Software Development S.R.L.; Arobs Software S.R.L. „Moldtelecom" S.A.; Institute of Energetics of Academy of Science of Moldova; Center of Science and Engineering „Informinstrument" S.A.; Institute of research in the field of non-destructive testing; Î.C.S. „Cedacri International" S.R.L.; Allied Testing S.R.L.; Amdaris S.R.L.; PI IT and Cyber Security Service; Pentalog CHI S.R.L.; Endava S.R.L. etc.

The partners will contribute to the training of qualified specialists through mentoring activities, the development of courses, workshops and seminars for the training of theoretical and practical programming skills, design of robotic and mechatronic systems.

2. **Beneficiaries (short profile and numbers): direct, indirect**

The direct beneficiaries of the training laboratory in the field of robotics and mechatronics within the DEC are the students from several study programs within TUM, such as: "Automation and Informatics", "Robotics and Mechatronics", "Machines and systems production", "Machine building technology", "Mechanical engineering", "Electromechanics", "Computers and Networks", "Information technology", "Software engineering", "Information security" etc.

The approximative number of students who will benefit from DEC during a year of study is 500.

The center is expected to be used both for teaching and research as for students (bachelor, master and doctorate) so for teachers, involved in the study programs "Automation and Informatics", "Robotics and Mechatronics", "Computers and networks ”,“ Information Security ”,“ Information Technology”, “Software Engineering”.

At the same time, the DEC will be used as a center for continuous training of industry specialists, users of robotic and mechatronic systems. The training courses, but the practical expertise offered by this Center will ensure companies with a significant advantage of the transition to Industry 4.0, to the economy of the future and will make them much more competitive on the national and international market.

The indirect beneficiaries are the industrial enterprises of the Republic of Moldova, various institutions, companies, state or private organizations, operating nationally and internationally that have an urgent need for specialists in the field of automation and mechatronics, but also IT and Cyber Security, who would integrate both theoretical and practical skills in the design, development, programming and use of robotic and mechatronic systems.

3. Management of DEC

The training laboratory in the field of robotics and mechatronics within the Digital Engineering Center (DEC) will be managed by the Department of Software and Automation Engineering within the Faculty of Computers, Informatics and Microelectronics, TUM.

4. Equipment required, location of the Center

The training laboratory in the field of robotics and mechatronics within the Digital Engineering Center (DEC) will be located in block of the Faculty of Computers, Informatics and Microelectronics, TUM.

Description of equipment

The Comprehensive Training System for Mechatronics and Industry 4.0 is designed for training in basic skills and specialist knowledge in the area of automation technology and mechatronics. Taking the form of a miniaturized production line, it also offers an in-depth look into intelligent networking of machines in the production environment, and their work processes. The system consists of three stations: Distributing Pro, Joining, and Sorting Inline. These stations are networked, equipped with several RFID writing and reading heads and intelligent IO-Link-based sensors, and form an autonomous system.

With a web-based software environment around an educational MES system, the equipment offers a wide range of options for learning about the latest technologies for Industry 4.0. This software environment includes an integrated online store, training content such as IoT retrofitting based on mini control systems, touch panel programming, and artificial intelligence with machine learning algorithms. With training programs supported by augmented reality and clear, pedagogical preparation of all content with extensive training materials, this training system is a core component of any modern MPS-based (modular production system) training solution.

Process

Processing in the training system begins when a production order is entered by means of an intuitive user interface. The first station separates workpieces out of three stacking magazines and then writes data onto the corresponding RFID tags by means of an RFID sensor. Intelligent sensors, such as laser, ultrasonic, and capacitive sensors, supply relevant analog data. The subsequent Joining station reads the RFID tag and refers to the production order to decide whether the workpiece should be fitted with a cover. The third station, Sorting, distributes the workpieces into two chutes or passes them on to additional stations downstream, according to the saved information.

Intuitive operation
Control and monitoring of the system is performed using a large touch panel and a keyboard. The core of the software environment is an educational MES system, which can be expanded by adding further applications.

MES with Webshop
The MES provides the following services:

- System configuration
- Product configuration
- Order entry and management
- Order tracking
- Order data storage
- Web services for various user groups

IoT Retrofitting
An IoT system based on a microcomputer and a webcam offers the students new perspectives for innovative business models by retrofitting existing industrial systems. The latest technologies based on artificial intelligence and machine learning are used.

IO-Link and OPC-UA
The students learn all about intelligent IO-Link-based sensors, get to know their advantages when compared with conventional sensors, and are then able to address, interpret, and service them and integrate them into production systems. The basics of Profinet and OPC-UA are also taught in addition to IO-Link. This gives the students a solid introduction into the most important network-based protocols in automation environments.

Touch panels
The training system teaches how to program touch panels with a structured display of all relevant information. This involves not only the visual presentation of live data from the system, but also ways of controlling and interacting with the system. All workpieces are equipped with RFID tags, giving them a digital product memory. This enables a high level of customization in the production of the individual orders.

Accessories
Furthermore, the training system includes a range of accessory components. A digital simulation box is available, as well as a digital interface (easyport) and a FluidSIM license. This allows the components to be controlled in a number of different ways, e.g. via a PLC, using the simulation box, or simulation software.

Digital learning support
The training process is supported by augmented reality (AR). AR supplies the students with system data in real time. This, together with QR codes on the individual components of the training system, allows rapid retrieval of relevant technical information for each specific learning unit. The tasks in the training documentation are partly supported and guided using augmented reality.

For the best possible training results, the training system has been supplemented with carefully tailored training materials in the form of e-learning and PDF documents. Through modular use of these materials, the training pathway remains flexible and expandable. This makes it possible to divide up wide-ranging and complex topics into small learning units that are easy for students to understand.

Expansion options
The training system is a core component of all modern MPS-based training systems. By integrating additional MPS system modules now or at a later point in time, you can create a larger network of systems with a more complex process. You can then add training content that cannot be modeled using the three basic stations.

What's more, the training system provides the foundation for various add-on packages. You can seamlessly integrate new topics such as IT security in industrial environments, energy management in industrial systems, AC drive and frequency converters, machine safety, and mobile robotics. The ergonomic design of the training system ensures efficient and non-tiring working and learning.

Objectives

- Networking of multiple stations, control systems, and I/O units with an MES-centered software environment via network-based protocols (OPC-UA, IO-Link, Profinet, TCP-IP, Node-RED)
- Programming of industrial touch panels and familiarity with modern human/machine interfaces such as augmented reality and web interfaces
- Familiarity with RFID and network technology, and intelligent IO-Link-based sensors
- Learning about new business models using industrial IoT retrofitting by means of a webcam and microcomputer equipped with artificial intelligence and machine learning algorithms
- Production of customized products using production orders developed through an online store

Benefits

- In addition to the basics of mechatronics and automation technology, the system offers quick, simple, and broad access to the most important Industry 4.0 topics
- The system's high degree of modularity is the basis for a clear and manageable learning pathway made up of modules, from stations through to a software-controlled network of systems
- Comprehensive training documentation splits up complex topics into small steps and learning units, allowing structured yet flexible teaching
- The system offers a simple way for students to develop understanding of topics such as HMI, network technology, RFID, smart sensors, and service-based software structures
- The training process is supported by modern media such as QR codes for provision of information and interaction with the training system based on augmented reality

Technical data

- Operating pressure: 600 kPa (6 bar)
- Power supply: 24 V DC/4.5 A
- Square/round workpiece dimensions: max. 40 mm
- Dimensions (W x D x H): approx. 1400 x 700 x 1705 mm

The main actions will be focused on:

- Provide new curricula linked with modern labs- This action will permit to match universities' capacities with national and international trends in ICT. There will be assessed universities, which have IT faculties, but also faculties closely connected/related to IT, as finance, agriculture, biology, etc. While providing the assessment, the experts will analyze physical spaces, human resource that can be involved in continuous use of labs and updated curricula. Also, universities will have to prove their interest in opening new labs and ensure sustainability. The action will fully look into technical equipment endowment and operation model of the laboratory (specific examples are Aneil from Yerevan, Armenia- engineering center combining both students and acceleration work)

- Modernize curricula and increase the qualification of the faculty- any lab is not working without relevant content. Tekwill will look into developing necessary content and methodologies to get educational materials

to necessary audience with usage of digital tools. Software development and non-engineering related tech disciplines can be quite quickly adjusted to this reality. This program will be piloted started Autumn 2021 and reflected in the next year Annual Plan.

- To support professors, the project may decide to support visits for professors in gaining skills and sharing experience on related subjects, if the pandemic situation allows. At the same time, the professors from the selected universities, who are involved in educational programs submitted for revision or update, will be invited to pay a visit to an university, where the similar programs are implemented for a long time, so they can learn from their peers best practices in preparation of qualified specialists.

- Create Synergies with existing infrastructure provided by Tekwill and FabLab, where also extracurricular activities may happen and be performed using the above equipment, Tekwill Team abilities and existing+ new infrastructure.

The program aims at developing:

1. Capacity of the university to look into technologies of the future.
2. Develop a mainstream of new courses/activities for students and general public
3. Raise awareness of green technologies, sustainable technologies, energy efficiency
4. Create new partnerships between tech and non tech companies and entrepreneurs
5. Align towards the future technologies applicable in Europe

Expected results of the support:

1. New direction of IT development programs
2. Increased technical capacity to UTM by providing new machines to develop new directions of activities
3. Capacity development of TUM staff
4. Awareness raised among the entrepreneurs
5. Min 2 potential partenrships with private sector enabled on green technologies.

For the creation of the laboratory, we have worked together with TUM professors from IT sector.