PASO (Precision Agriculture Service Office)
Business Plan

Erasmus+ Project
New and Innovative Curricula in Precision Agriculture / (NICOPA)
597985-EPP-1-2018-1-KZ-EPPKA2-CBHE-JP

Turkmen State Architecture and Construction Institute

Ashgabat 2023

CONTENT

Introduction

Precision Agriculture Service Office: Mission and objectives

Mission: The main mission of the PASO office is to create conditions to ensure the sustainability of the project results after its completion and the receipt of funds to maintain the functioning of the office and its further development

Tasks:

- Analysis of the compliance of competencies/skills of construction graduates with the requirements of employers;
- Marketing of the educational services market;
- Marketing analysis of the labor market in the region;
- Establishing contacts with industry representatives, enterprises, research centers, government organizations and institutions;
- Analysis of the requirements of potential employers;
- Marketing needs in the field of implementation and use of geodesy technologies;
- Development and implementation of training courses and/or advanced training different target groups;
- Analysis of the needs of construction enterprises in professional training for the construction industry, search for interested organizations;
- Development of questionnaires for construction organizations in order to determine expectations and requirements for potential employees (for example, graduates, students, future students, students, other social groups)
- Providing information support.

Section 1. Brief summary of the business idea

In Turkmenistan, special attention is paid to reforming the domestic architectural and construction industry and accelerating the development of projects for the creation of

innovative urban space. One of the main aspects is the use of environmentally friendly materials in construction. An important feature is the implementation of computer technologies in the urban space for spatial-geographical information integration with the aim of creating a modern system of planning and management of the urban environment. As a result of the above, it is necessary to conclude that for the preparation of qualified specialists who are able to perform the above-mentioned works related to the maintenance and improvement of the quality of construction buildings and facilities, industrial and residential complexes, the relevance of improving the methodological approaches to the training discipline "Engineering Geodesy" in the technical centers of Turkmenistan is increasing. . The quality of teaching in this course directly determines the level of professional training of future civil engineers. Undoubtedly, the most significant contribution to the improvement of the teaching of this discipline is provided by the availability of modern geodetic devices in the learning process, which allow to perform measurements related to demolition works and precise control of various geometric parameters of the structure. Students of the Turkmen State Institute of Architecture and Construction acquire the skills of working on electronic total stations to receive data in digital format related to geodetic measurements during practical classes. Also, teaching manuals and books on engineering geodesy in the Turkmen language, containing detailed characteristics of practical methods of using electronic geodetic devices at various stages of construction production, were prepared by the teachers of the Geodesy department. Computerization and the use of modern audiovisual and multimedia technologies in the educational process significantly stimulate the cognitive interest of students in the taught discipline, as a result of which favorable conditions are created for the realization of their potential opportunities for deeper professional knowledge. Thus, further improvement of the educational process when teaching the discipline "Engineering Geodesy" in the technical universities of our country will contribute to the training of highly qualified specialists, which will make it highly competitive in the modern labor market.

Section 2. Brief Description of Products and Services

The PASO office will provide the following consulting and educational services to students and undergraduates of agricultural specialties, teachers of specialized disciplines:

- Marketing needs in the construction industry and development of relevant services for different target groups;
- To study the suitability of the educational level, skills and abilities of the employees to the requirements of the employers;
- To create new training courses according to the requirements of construction enterprises and to conduct an analysis of the training courses taught in the institute throughout the construction industry in order to modernize the existing courses;
- Training and development of skilled workers in the construction industry;
- Increasing competitiveness of graduates at all levels of national and international labor markets;
- Organization of information tours within the institute and conducting introductory trainings with student groups;
- Project work
- expanding the experience of conducting professional experience of students in accordance with educational programs;
- To study the needs of industry enterprises in training professionals;
- Search for interested organizations and sponsors;
- To study and teach students the algorithms of differential processing of construction sites using digital technologies - satellite images.

Section 3. Competitor analysis

Taking into account the characteristics of Turkmenistan, training specialists of the construction industry and developing in them sound knowledge and professional skills in using innovative technologies in accurate measurement work;

Use the latest educational and information technologies, scientific-technological and material-technical supplies;

Creating a comprehensive educational and informational environment related to scientific research, conducting professional development training for various target groups.

Section 4. Target market analysis

Use the latest educational and information technologies, scientific-technological and material-technical supplies.

Creating a comprehensive educational and informational environment related to scientific research, conducting professional development training for various target groups.

Section 5. Marketing section of the business plan

Services will be provided primarily for architecture and construction. This activity is promising, since competition in this area is still low, and the need for services is high. The marketing strategy of the PASO office is aimed at increasing the volume of services provided by maintaining high quality of services provided. Thus, the required level of profit will be maintained due to the unique offer on the market of courses and training, which will keep prices at a sufficient level without trying to reduce them.

To ensure a sufficient flow of clients, the head of the PASO office plans to enter into partnerships with other partner universities of the consortium, and it is also planned to attract specialized institutions and agencies. A separate point is to increase the recognition of the PASO office through promotional events.A SWOT analysis of the position of the PASO office in the market of educational and consulting services was conducted (Table 1).

Table 1 - A SWOT analysis of the position of the PASO office in the market of educational and consulting services

	Positive influence	Negative influence
Internal environment	Strengths	Weaknesses
	Availability of a strong teaching staff	The customer base has not been formed
	The customer base has not been formed	
	The presence of teachers with extensive practical experience in production among the teaching staff	
External environment	Opportunities	Threats
	Development of promising new courses	Competition

Section 6. Production section of the business plan

The PASO office is located in the main building of **Turkmen State Architecture and Construction Institute** on the first floor, rooms 102, 103.

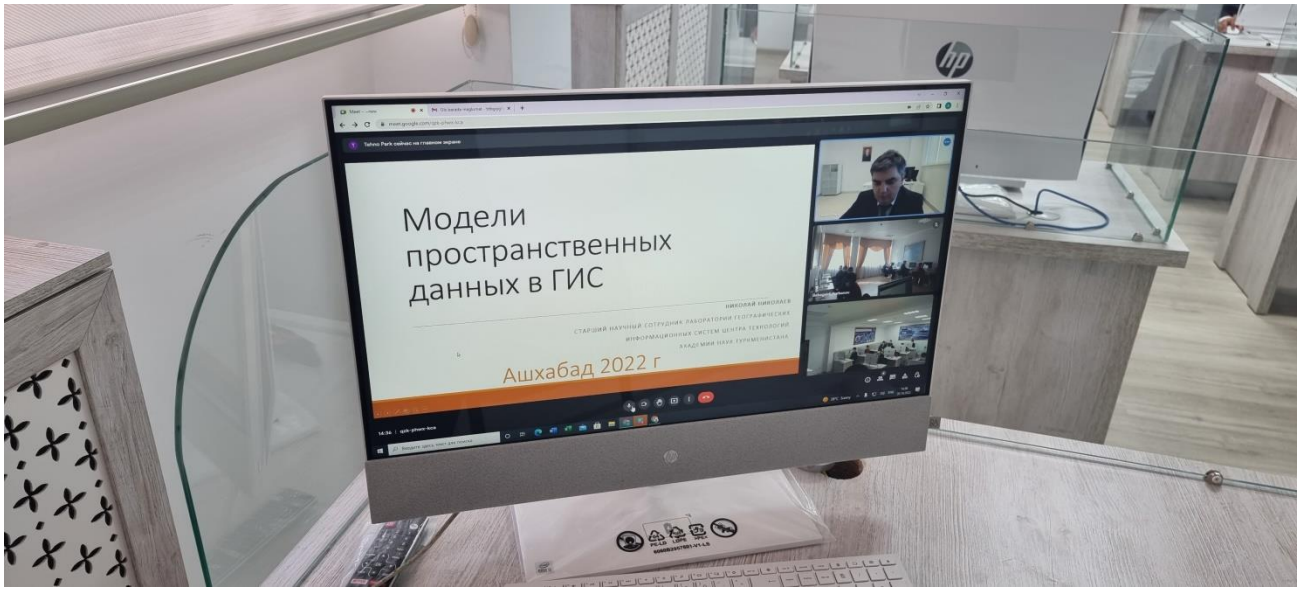
The PASO office staff member is a full-time university faculty member.

The PASO office is equipped with equipment purchased with project funds and placed on the balance sheet of the university (Table 2).

Table 2 – Equipment installed in the PASO office

Name	Quantity, pcs.
Smart board (Smart Board, SMB685 (included projector Smart V12)	1
Monoblock (All in one DELL Inspiron 7700, 27”, Intel Core i5 1135G7, 8ГБ, 512ГБ SSD, NVIDIA GeForce MX330-2048 Мб, Win10 Pro)	11
Laptop (Mobile workstation DELL G15, 15.6’, Intel Core i7 1087OH 2.2ГГц, 16 ГБ, 1ТБ SSD, NVIDIA GeForce RTX 3050 Ti-4096 Мб, Windows 10)	1
Printer (Color MFD A3, Epson L1300)	1
Printer (Monochrome MFD A4, HP MF 443dw)	1
Backup data storage (Personal Cloud Storage, Zyxel NAS326 (2*10Tb HDD)	1
Camera (Digital Camera (Kit), CANON EOS 4000D)	1
Smart TV (Smart TV, Samsung UE55TU7090UXRU)	1

Uninterruptable power source (UPS, SVC-V, POWERCOM Raptor RPT-2000AP LCD)	1
Network switch (24 port Gigabit Switch, HPE OfficeConnect 1820)	1
Sensor (IMETOS® IMT280 base station with precipitation gauge, air temperature and humidity sensor (hygroclip), anemometer (mechanical), pyranometer)	1
Sensor (ECH874EXT External interface for connecting 1x soil water volume sensor from Pessl Instruments or Meter Group, 4x Watermark tensiometer sensors + 1x soil temperature with 5m cable)	1
Sensor (SEN-SDI12 Internal interface for connecting 2x profile sensors for volumetric water content in soil such as Sentek or Aquacheck)	1
Sensor (IM5041D Universal Soil Temperature Sensor with PI Sensor Part)	1
Sensor (PI54-D/5 Soil volumetric water content sensor from Pessl Instruments with 5m cable)	1
MD510SM Watermark strain gauge with 3.5m cable	1
TNS107 Tensiometer Irrometer 90cm, without pressure gauge	1
SE1200S Profile sensor for volumetric water content in soil manufactured by Sentek D&D Triscan 120 cm: 12x temperature, 12x soil humidity and 12x soil salinity, with 5m cable	1


Модели
пространственных
данных в ГИС
Ашхабад 2022 г


Применение GPS
Ашхабад 2022 г
рименение GPS
Ашхабад 2022 г

IMETOS® IMT280 base station with a precipitation gauge, air temperature and humidity sensor (hygroclip), anemometer (mechanical), pyranometer is installed in front of the entrance to the main building of the university.

A full range of autonomous monitoring systems under the iMETOS® brand and FieldClimate cloud platform is used in all climate zones.

Project risk assessment

Table 3 presents the total costs associated with operating a PASO office.

Table 3 - Total costs

Name	Amount of costs per month, manat
Office employee salary	1800
Equipment depreciation	1000
Utility bills	1200
Other expenses	3500

Section 7. Financial section of the business plan

The forecast monthly revenue will be 8000 manat costs – 4200 manat. Annual revenue growth is projected to be within 10%.

Services will be provided throughout the entire calendar year.

Table 4 - Profit and loss statement, thousand tenge

	2024	2025	2026	2027	2028
Revenue from services	1 000	1 100	1 200	1300	1400
Expenses	800	850	900	950	1000
Gross profit	200	250	300	350	400

Table 5 - Possible risks and ways to eliminate and minimize them

№	Name of risk	Risk assessment	Methods for eliminating and minimizing negative consequences
External risks			
1	Entry into the market of a strong competitor	Medium	Maintaining a high level of quality of services provided
2	Probability of decreased demand as a result of market oversaturation	Medium	Differentiation of services
Internal risks			
1	Decrease in quality services provided, as a result low level of qualifications of teaching staff	Low	Training current teaching staff
2	Lack of own funds for self-financing of the project	Low	Low Search for alternative sources of replenishment of office funds

Conclusion

According to the results of the analysis, it can be concluded that the PASO office will become self-sustaining within a year. An increase in the services provided is predicted due to increased demand. The risks of the project are low, since at the moment there is practically no competition.