Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

WP2: Enhancing Entrepreneurship Education and Skills Development

D 2.1 Report on status quo on entrepreneurship education, labour market requirements and knowledge/skills mismatches

Jizzakh Polytechnic Institute Uzbekistan

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

TRIGGER partners

Technical University of Kosice *Slovakia*	
L.N. Gumilyov Eurasian National University *Kazakhstan*	
Atyrau State University *Kazakhstan*	
Toraighyrov University *Kazakhstan*	
Termez State University *Uzbekistan*	
Namangan Institute of Engineering and Technology *Uzbekistan*	
Jizzakh Polytechnic Institute *Uzbekistan*	
Tashkent State Transport University *Uzbekistan*	
Dangara State University *Tajikistan*	
Khorog State University named M. Nazarshoev *Tajikistan*	
Kulob State University *Tajikistan*	
University of Applied Sciences BFI Vienna *Austria*	
Université Côte d'Azur *France*	

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

ASTRA *Slovakia*	
IDEC *Greece*	

Acknowledgement: TRIGGER is co-funded by the Erasmus+ Programme of the European Union under Grant Agreement № 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

Disclaimer: The views and opinions expressed in this publication are the sole responsibility of the author(s) and do not necessarily reflect the views of the European Commission

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

Table of Contents

1. Introduction 4

2. Overview of current offer in entrepreneurship education at the HEI 5

2.1. Existing entrepreneurship education offer at BA level 5

2.2. Existing entrepreneurship education offer at MA level 7

2.3. Existing entrepreneurship education offer at PhD level 8

2.4. Other activities in entrepreneurship education 8

2.5. National/institutional regulations to implement changes at the course level and to initiate new extra-curricular activities 9

3. Results of the HEInnovate self-assessment for the dimension “Entrepreneurial Teaching and Learning” and “Preparing and Supporting Entrepreneurs” 9

3.1. Dimension “Entrepreneurial Teaching and Learning” 10

3.2. Dimension “Preparing and Supporting Entrepreneurs” 11

4. In-depth survey (employers, alumni) 13

4.1. Dimension “Ideas” 13

4.2. Dimension “Resources” 14

4.3. Dimension “Actions” 17

4.4. Dimension “Digital Skills” 19

4.5. Dimension “Financial Skills” 19

4.6. Dimension “Marketing” 20

4.7. Dimension “Innovation management” 20

5. Identified gaps and skills mismatches 21

6. Conclusions: Steps to further develop entrepreneurship education at the university 22

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

1. Introduction

The present report provides an overview of the status quo of entrepreneurship education at Jizzakh Polytechnic Institute in Uzbekistan and aims to identify related labour market requirements and possible knowledge/skills mismatches of university graduates. The report was developed as part of Work Package 2 on "Enhancing Entrepreneurship Education and Skills Development" (WP2) of the Erasmus+ Capacity Building in Higher Education Project "Triggering innovative approaches and entrepreneurial skills for students through creating conditions for graduate's employability in Central Asia" (TRIGGER).

The Jizzakh Polytechnic Institute was founded in 1992 by the Decree of the President of the Republic of Uzbekistan on the basis of the Jizzakh branch of the Tashkent Institute of Architecture and Civil Engineering. There are **faculties 7** (**Transport; Architecture and construction; Engineering and building materials; Industrial technologies; Chemical technologies; Power engineering and radio electronics; Service;**) and number of employees: **422**, Students, **8377** Alumni more than **35000**. The report first provides an overview of the current offer in entrepreneurship education at the university. Second, relevant results of an HEI self-assessment are provided which was conducted based on the HEInnovate[1] tool in WP1.[2] For the requirements of WP2 the present report specifically looks at the self-assessment findings of the university for the HEInnovate dimensions "Entrepreneurial Teaching and Learning" and "Preparing and Supporting Entrepreneurs".[3] Third, results of a survey among employers and graduates are provided to identify labour market qualification requirements and possible skills mismatches for graduates in the field of entrepreneurial skills. The survey was implemented by the university in spring 2021 as part of WP2. Fourth, a summarizing discussion of the identified gaps and skills mismatches is provided. In sum, the mentioned aspects allow for comprehensive audit of the state of entrepreneurship education at the university. Finally, conclusions for the further development of entrepreneurship education at the university are derived.

Before digging deeper into the status of entrepreneurship education at the university, this section closes with a summary on the notion of entrepreneurship education as adopted in the TRIGGER project:

- **Entrepreneurship Education** (EE) seeks to provide students with knowledge, skills and motivation to create ideas in entrepreneurial action in different environments, both as self-

[1] For further details see: https://heinnovate.eu/en
[2] For further detail see Deliverable 1.1 on "The Methodology for the Analyses of HEI preparedness for future challenges" of Work Package 1.
[3] For further results of the self-assessment along all 8 HEInnovate dimensions see Deliverable 1.2 "The Report on HEI preparedness for future challenges in CA countries" of Work Package 1.

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

employed entrepreneur and as employee in established organisations (EC 2015, Lackéus et al. 2020).

- **Entrepreneurship** is a key competence for all learners, supporting personal development, active citizenship, social inclusion and employability (see European Commission et al. 2016: 21).
- **Organizational change** of HEIs is needed, since the capacity to implement the entrepreneurship and innovation agenda depends on the governance arrangements, organisational capacity and the institutional culture of HEIs as well as characteristics of the surrounding economy "(OECD 2019: 12).

2. Overview of current offer in entrepreneurship education at the HEI

This section provides an overview of the status quo of entrepreneurship education at the university, looking at BA, MA, and PhD levels.

2.1. Existing entrepreneurship education offer at BA level

Jizzakh Polytechnic Institute is the well-known Institute in Uzbekistan. Jizzakh Polytechnic Institute offers to their student's entrepreneurship courses such as **Foreign Investments, small business and entrepreneurship, Business decision making, Fundamentals of business management** for BA level students which are 2-3-4 course students of the Institute. Besides, our Institute has a department which is called **"Economics and management"**. In this department all these courses have been taught since 2002. For example, in working curriculum of subject **small business and entrepreneurship is taught these topics:**

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

№	Course name	Amount of credits	Specialty	Status	Semester	Course content
1.	Foreign Investments, small business and entrepreneurship	173 hours	Management and all other directions	The main subject. Elective course	5 and 6 semesters	The purpose of teaching the subject is investment activity in students, foreign investments, their types, investment policy and its management, Modern forms and methods of stimulation are the key to increasing the attractiveness of the Uzbek economy for foreign investors directions, foreign economic activity in the Republic of Uzbekistan the importance of development with the help of foreign investment, foreign methods for determining the cost-effectiveness of investments, small attracting foreign investment in business and private entrepreneurship knowledge, skills and appropriate to the direction profile to determine directions theoretical and practical training on the importance of small business and private entrepreneurship.
2.	Business decision making	228 hours	Management and management in Russian	The main subject. Elective course	4 semesters	The purpose of teaching the subject is to students with the modern science of making business decisions, their implementation and selection of strategies; to provide undergraduates with basic ideas and skills on the effective implementation of business strategies. The task of the science is to provide theoretical knowledge, practical skills, methodological approach to business strategy and scientific outlook on business execution and strategy, knowledge of business laws and principles of strategy creation and implementation, to reveal the role and importance of strategy in business execution.
3.	Fundamentals of business management	228 hours	Management and management in Russian	The main subject. Elective course	3 semesters	The goal is to provide students with systematized knowledge in the field of theoretical foundations and practical skills in the field of organizing and doing business in Uzbekistan the objectives of the discipline are: - mastering by students of basic concepts and concepts of business fundamentals, - consolidation and systematization of knowledge of the basic principles of organizing and doing business in Uzbekistan, - consideration and analysis of conditions for increasing the efficiency of commercial enterprises and their implementation of business development options in various sectors of the economy.

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

2.2. Existing entrepreneurship education offer at MA level

№	Course name	Amount of credits	Specialty	Status	semester	Course content
1.	Business performance and strategy	98 hours	Management	The main subject.	1 semester	The purpose of teaching the subject is to acquaint students with the modern science of choosing business models, their implementation and selection of strategies; to provide undergraduates with basic ideas and skills on the effective implementation of business strategies. The task of the science is to provide theoretical knowledge, practical skills, methodological approach to business strategy and the formation of a scientific worldview, knowledge of business laws and principles of strategy development and implementation, to reveal the role and importance of strategy in business implementation.
2.	Digital business management	101 hours	Management	The main subject.	3 semesters	The purpose of teaching the subject is to develop master's business skills in the digital environment, to provide theoretical and practical insights into the development and use of modern digital services, to know the basics of marketing digital solutions, to collect and process digital data in business, to use available resources.
3.	International business management	101 hours	Management	The main subject.	3 semesters	The main purpose of teaching the subject is to masters students' general ideas about modern international business, the formation of knowledge, skills and competencies in accordance with the profile of the direction on the application of knowledge acquired in the management processes of commercial organizations. The task of science is about the main stages of the evolution of international business theory; identification of current trends in international business development; separation of specific national models of management science; to study the peculiarities of the organization of internationally oriented business in different countries; modern technologies of international business; to determine the role of international transport and information infrastructure in the development of modern international business; identification of specific features of financial resource management of international firms.

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

2.3. Existing entrepreneurship education offer at PhD level

There is no offer for PhD level.

2.4. Other activities in entrepreneurship education

The Vice-Rector for Research and Innovation is responsible for improving the entrepreneurial and business skills of students at the Institute. At The Department of “Economics and Management” has a centre and there our students will learn about these activities.

- the essence and content of small business and entrepreneurship;
- types and forms of entrepreneurial activity;
- procedure for the organization and state registration of small business and entrepreneurship;
- licensing of small business and entrepreneurship;
- methods of managing small business and entrepreneurship;
- small business and entrepreneurship planning, business plan development;
- basics of economic analysis of small business and entrepreneurship;
- methods of calculating production costs and product costs in small business and entrepreneurship;
- opening a bank account;
- forms of lending to small business and entrepreneurship;
- registration with the tax inspection;
- taxation of small business and entrepreneurship, types of taxes and tax benefits;
- conducting audits and audits of small businesses and entrepreneurship;
- organization of information support for small business and entrepreneurship;
- increase the export potential of small business and entrepreneurship;
- development of market infrastructure for small business and entrepreneurship;
- business ethics and culture;

All these activities are existing and if there some changes in this field our responsible stuff will introduce it to our students. There will also be roundtable discussions with students, famous entrepreneurs, the Chamber of Commerce and Industry, the Agency for Entrepreneurship Development, and business leaders. Within the grant of “Establishing a vocational centre and a joint training laboratory on

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

electronics" funded by the World Bank, the student will learn entrepreneurship activities for electronics and energetics field students.

2.5. National/institutional regulations to implement changes at the course level and to initiate new extra-curricular activities

Within the last few years, after intensive reforms in the area of higher educations, universities in Uzbekistan receive more academic freedom. Small business and private entrepreneurship are identified as the priorities of the economy of our country. Over the past five years, about 2 thousand laws, decrees and resolutions have been adopted to develop this sector. For business, 114 licenses and permits were cancelled, a notification procedure was introduced for 33 types of activities. The procedures for obtaining permits have been simplified and, on average, the terms of their issuance have been reduced by 2 times. Unnecessary checks have been cancelled, restrictions related to the circulation of cash, currency and raw materials have been lifted. As a result of such opportunities, the number of new business entities is growing rapidly, and the existing ones are expanding their activities. The number of entrepreneurs has almost tripled over the past five years. Many business people have expanded their business nationwide, creating thousands of jobs and growing into large, successful companies. A class of entrepreneurs with their own brand in the domestic and foreign markets began to form. Jizzakh Polytechnic Institute has a continuous mechanism for monitoring and assessing the quality of educational programs. The following structural parts of the university are involved in this process: chairs, dean's offices, and the department for managing academic activities.

3. Results of the HEInnovate self-assessment for the dimension "Entrepreneurial Teaching and Learning" and "Preparing and Supporting Entrepreneurs"

As part of WP1 a HEI self-assessment was conducted based on the HEInnovate tool. For the requirements of WP2 this section specifically looks at the self-assessment results of the university for the HEInnovate dimensions "Entrepreneurial Teaching and Learning" and "Preparing and Supporting Entrepreneurs".[4]

[4] For further results of the self-assessment along all 8 HE Innovate dimensions see Deliverable 1.2 "The Report on HEI preparedness for future challenges in CA countries" of Work Package 1.

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

DIMENSION: Entrepreneurial Teaching and Learning

For this section, the average response score was 3.83 points.

- Support curriculum change to stimulate and develop entrepreneurial mindsets and skills through new pedagogies, student-centered, cross-disciplinary and practice-based learning 3.69
- Support access to student enterprise clubs, awards and societies 3.68
- Engage students in business idea / plan competitions as part of their extracurricular opportunities 3.71
- Ensure students have a clear understanding of the entrepreneurial learning outcomes expected and achieved 3.72
- Validate entrepreneurial learning outcomes at the institutional level 3.75

DIMENSION: Preparing and Supporting Entrepreneurs

For this section, the average response score was 3.77 points.

- Offer entrepreneurial team building support and conflict management 3.72
- Provide opportunities for peer-to-peer mentoring, such as entrepreneur clubs, where members help each other 3.67
- Host their own incubators or facilitate easy access to external incubators 3.72
- Ensure that their incubators offer a full range of soft support (networking, mentoring, etc.) as well as physical infrastructure 3.71
- Embed the incubation facilities with the research and education infrastructure of the HEI to enhance synergies 3.69

3.1. Dimension “Entrepreneurial Teaching and Learning”

The average grade in this dimension is 3.80. Jizzakh Polytechnic Institute has a technical focus, but we also offer students with the knowledge, skills, and desire to foster entrepreneurial success in a variety of situations. Entrepreneurship is an important component of the university's strategy. Entrepreneurship is currently the primary topic for students of all disciplines, with the goal of developing entrepreneurial abilities in pupils. The Institute focuses on the development of skills that allow students to realize their

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

potential as future manufacturers and employers. The Institute organizes business project and start-up contests and applies subject-based entrepreneurial curriculum in all areas of education.

Student mentoring Entrepreneurship is essential for the development of entrepreneurial skills and competences. Our institution hosts a number of activities in this area. We have an institute that emphasizes non-formal education in addition to formal education. The institution creates and executes curriculum for teaching entrepreneurship in conjunction with external stakeholders. The institution engages with stakeholders on a regular basis to better understand the demand for future skills. The institution will take the following steps:

- develop and enhance a new curriculum that will guide students to creative entrepreneurship and assist the process of practical training.
- Encourage pupils to participate in a variety of business activities, such as business groups, courses, and contests.
- Increase the number of informal entrepreneurship training courses available, and ensure that the university's curriculum offers chances to gain entrepreneurial skills and competences in preparation for an academic degree.
- Form different collaborations with local communities and organizations, local and regional governments, chambers of commerce, industry, and alumni.

3.2. Dimension “Preparing and Supporting Entrepreneurs”

Within the last few years, after intensive reforms in the area of higher educations, universities in Uzbekistan receive more academic freedom. Small business and private entrepreneurship are identified as the priorities of the economy of our country. Over the past five years, about 2 thousand laws, decrees and resolutions have been adopted to develop this sector. For business, 114 licenses and permits were cancelled, a notification procedure was introduced for 33 types of activities. The procedures for obtaining permits have been simplified and, on average, the terms of their issuance have been reduced by 2 times. Unnecessary checks have been cancelled, restrictions related to the circulation of cash, currency and raw materials have been lifted. As a result of such opportunities, the number of new business entities is growing rapidly, and the existing ones are expanding their activities. The number of entrepreneurs has almost tripled over the past five years. Many business people have expanded their business nationwide, creating thousands of jobs and growing into large, successful companies. A class of entrepreneurs with their own brand in the domestic and foreign markets began to form. Jizzakh Polytechnic Institute has a continuous mechanism for monitoring and assessing the quality of

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

educational programs. The following structural parts of the university are involved in this process: chairs, dean's offices, and the department for managing academic activities. This process includes a survey of students, graduates, teachers, employers; analysis of students' progress; information support of the educational process, resource and information support of the EP; analysis of the student assessment system; assessment of the level of competence of teaching staff; the degree of compliance of the educational programs with the established requirements.

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

4. In-depth survey (employers, alumni)

As part of WP2 the university conducted a survey among employers and graduates to identify labour market qualification requirements and possible skills mismatches for graduates in the field of entrepreneurial skills.

In this chapter, results from the online survey of employers and alumni are presented. The rationale of the survey was to identify the skills gaps in terms of skills needed and the actual skills state of university graduates as perceived by companies and alumni.

The survey was conducted in May and June 2021. Each TRIGGER partner in Kazakhstan, Uzbekistan and Tajikistan distributed the same questionnaire independently in order to gain comparable data. The questionnaire was developed based on the Entrepreneurship Competence Framework[5] and other studies on entrepreneurship.[6]

In total, the questionnaire comprised 130 items on three EntreComp dimensions „Ideas“, „Resources“ and Actions“ and in four dimensions on „Digital Skills“, „Financial Skills“, „Marketing Skills“ and „Skills in Innovation Management“, plus 8 questions on demographic variables, such as position of the survey participant in the company, company size, and sector of company/professional activity. All items were presented with a five-point Likert scale anchored with 1 = not at all important to 5 = very important.

4.1. Dimension “Ideas”

Table 1: Dimension "IDEAS"	Employer						Alumni					
		Importance		Graduate level		I ± GL		Importance		Graduate level		I ± GL
	N	Mean	SD	Mean	SD		N	Mean	SD	Mean	SD	
Items												

[5] Bacigalupo M., Kampylis P., Punie Y. and Van Den Brande L. (2016) EntreComp: The Entrepreneurship Competence Framework. Luxembourg (Luxembourg): Publications Office of the European Union; Online: https://publications.jrc.ec.europa.eu/repository/handle/JRC101581 (accessed 2021-02-02).

[6] The dimension on „Digital Skills“ was developed from Carretero, S. / Vuorikari, R. / Punie, Y. (2017). DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use, doi:10.2760/38842; the further dimensions were built on Loué, C. & Baronet, J. (2012) Toward a new entrepreneurial skills and competencies framework: a qualitative and quantitative study. In: International Journal of Entrepreneurship and Small Business, Vol. 17, No. 4, pp. 455-477.

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

Identifying, creating and seizing opportunities.	28	3,5	1,1	3,4	0,6	-0,1	24	3,4	0,7	3,1	0,9	-0,3
Uncovering the needs of customers and other stakeholders.	28	3,4	0,8	3,3	0,8	-0,2	24	3,5	0,7	3,1	0,9	-0,4
Analysing the contexts where value can be created.	28	3,3	1,0	3,4	0,8	0,1	24	3,5	0,6	3,0	1,0	-0,5
Developing ideas and opportunities to create value.	28	3,7	0,9	3,3	0,9	-0,4	24	3,5	0,6	3,0	1,1	-0,5
Developing better solutions to existing and new challenges.	28	3,9	0,9	3,3	1,0	-0,6	24	3,5	0,7	3,1	0,9	-0,4
Exploring and experiment with innovative approaches.	28	3,9	1,1	3,3	1,0	-0,7	24	3,5	0,7	3,0	1,0	-0,6
Developing a vision to turn ideas into action.	28	4,0	1,0	3,1	1,0	-0,8	24	3,5	0,6	3,1	1,0	-0,4
Judging what value is in social, cultural and economic terms.	28	3,6	0,9	3,3	0,9	-0,3	24	3,5	0,8	3,0	0,8	-0,5
Recognising the potential an idea has for creating value.	28	3,6	1,0	3,5	0,9	-0,1	24	3,5	0,6	3,1	0,8	-0,4
Identifying suitable ways of making the most out new ideas.	28	3,8	1,1	3,5	1,0	-0,3	24	3,5	0,8	3,1	0,9	-0,4
Assessing the consequences of ideas that bring value on the target community, the market, society and the environment.	28	3,5	1,0	3,6	0,8	0,1	24	3,5	0,7	3,0	0,9	-0,6
Reflecting on how sustainable long-term social, cultural and economic goals are.	28	3,5	1,0	3,4	1,0	-0,1	24	3,5	0,8	3,1	0,9	-0,4
Acting responsible.	28	3,9	1,1	3,3	1,2	-0,6	24	3,5	0,9	3,1	1,0	-0,3

There are no similarities between importance and graduate level within employer ratings and within alumni. High ratings within employers are analysing the contexts where value can be created and assessing the consequences of ideas. The highest differences between importance and graduate level are highlighted in red colour. These items are Developing better solutions to existing and new challenges -0.6, exploring and experiment with innovative approaches -0.7, developing a vision to turn ideas in to action -0.8, acting responsible -0.6 in employer section and exploring and experiment with innovative approaches -0.6, assessing the consequences of ideas that bring value on the target community, the market, society and the environment -0.6.

4.2. Dimension “Resources”

Table 1: Dimension "Resources"	Employer				Alumni			
		Importance	Graduate level	I ± GL		Importance	Graduate level	I ± GL

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

	N	Mean	SD	Mean	SD		N	Mean	SD	Mean	SD	
Items												
Reflecting on your needs, aspirations and wants in the short, medium and long term.	28	3,7	1,0	3,3	0,8	-0,4	24	3,4	0,6	3,1	0,7	-0,3
Identifying and assess one's own individual and group strengths and weaknesses.	28	3,6	0,9	3,3	0,8	-0,4	24	3,6	0,7	3,3	0,9	-0,3
Believing in one's own ability to influence the course of events, despite uncertainty, setbacks and temporary failures.	28	4,0	0,7	3,5	0,8	-0,6	24	3,5	0,7	3,3	0,9	-0,2
Being determined to turn ideas into action and satisfy one's own need to achieve.	28	3,5	1,0	3,5	0,9	0,0	24	3,3	0,6	3,2	0,9	-0,2
Being prepared to be patient and keep trying to achieve long-term individual or group aims.	28	3,6	1,1	3,4	0,9	-0,2	24	3,5	0,7	3,1	0,9	-0,5
Being resilient under pressure, adversity, and temporary failure.	28	3,5	1,0	3,4	0,9	-0,1	24	3,7	0,8	3,1	1,0	-0,5
Getting and managing the material, non-material and digital resources needed to turn ideas into action.	28	3,6	0,8	3,4	0,8	-0,3	24	3,5	0,8	3,0	0,8	-0,5
Making the most of limited resources.	28	3,6	1,0	3,4	0,7	-0,1	24	3,4	0,8	3,1	0,8	-0,3
Getting and managing the competences needed at any stage, including technical, legal, tax and digital competences through suitable partnerships, networking, outsourcing and crowd-sourcing.	28	3,5	1,1	3,3	0,9	-0,1	24	3,4	0,8	3,1	0,9	-0,3
Estimating the cost of turning an idea into a value-creating activity.	28	3,7	1,0	3,5	0,7	-0,2	24	3,6	0,7	3,0	0,8	-0,5
Planning, putting in place and evaluating financial decisions over time.	28	3,7	0,9	3,4	0,9	-0,3	24	3,5	0,7	3,2	1,0	-0,4
Managing financing to make sure my value-creating activity can last over the long term.	28	3,8	0,9	3,5	0,8	-0,2	24	3,5	0,7	3,1	0,9	-0,4
Inspiring and enthusing relevant stakeholders.	28	3,8	1,0	3,5	0,8	-0,2	24	3,7	0,6	3,0	0,9	-0,7
Getting the support needed to achieve valuable outcomes.	28	3,5	1,0	3,5	0,6	0,0	24	3,5	0,8	3,0	0,9	-0,5
Demonstrating effective communication, persuasion and negotiation.	28	3,5	1,1	3,5	0,9	-0,1	24	3,5	0,7	3,1	0,9	-0,3
Demonstrating effective leadership.	28	3,4	1,2	3,2	1,0	-0,2	24	3,5	0,8	3,1	1,0	-0,4

In dimension resources There is similarities between importance and graduate level within employer Being determined to turn ideas into action and satisfy one's own need to achieve 0.0 and getting the

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

support needed to achieve valuable outcomes 0.0. The highest differences between importance and graduate level highlighted in red colour. These items are Believing in one ‘s own ability to influence the course of events, despite uncertainty, setbacks and temporary failures-0.6 in employer section and Inspiring and enthusing relevant stakeholders -0.7 in alumni section.

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

4.3. Dimension "Actions"

Table 1: Dimension "Actions"	Employer						Alumni					
		Importance		Graduate level		I ± GL		Importance		Graduate level		I ± GL
	N	Mean	SD	Mean	SD		N	Mean	SD	Mean	SD	
Items												
Initiating processes that create value.	28	3,0	0,9	3,2	1,0	0,1	24	3,4	0,7	3,0	0,8	-0,4
Taking up challenges.	28	3,3	0,9	3,3	1,0	-0,1	24	3,3	0,8	3,0	0,8	-0,3
Acting and working independently to achieve goals, stick to intentions and carry out planned tasks.	28	3,5	1,1	3,2	0,8	-0,3	24	3,3	0,7	3,1	0,9	-0,3
Setting long-, medium- and short-term goals.	28	3,5	1,0	3,3	0,8	-0,2	24	3,4	0,9	3,0	1,0	-0,4
Defining priorities and action plans.	28	3,5	1,1	3,6	0,9	0,1	24	3,4	0,9	3,0	1,0	-0,3
Adapting to unforeseen changes.	28	3,6	1,0	3,4	1,0	-0,3	24	3,4	0,8	3,2	0,9	-0,2
Making decisions when the result of that decision is uncertain, when the information available is partial or ambiguous, or when there is a risk of unintended outcomes.	28	3,2	1,1	3,3	1,0	0,1	24	3,5	0,8	3,1	0,8	-0,4
Testing ideas and prototypes from the early stages to reduce risks of failing.	28	3,3	0,9	3,3	0,9	0,1	24	3,3	0,9	3,2	1,0	-0,2
Handling fast-moving situations promptly and flexibly.	28	3,5	1,1	3,3	1,0	-0,3	24	3,4	0,9	3,0	1,0	-0,4
Working together and cooperate with others to develop ideas and turn them into action.	28	3,7	1,1	3,3	1,0	-0,4	24	3,5	0,8	3,1	1,0	-0,4
Networking with others to organise skills and expertise needed for goal attainment.	28	3,4	1,0	3,1	1,0	-0,3	24	3,7	0,8	3,0	0,9	-0,7
Solving conflicts and facing up to competition positively when necessary.	28	3,6	1,0	3,1	1,1	-0,5	24	3,5	0,8	3,2	0,9	-0,3
Using any initiative for value creation as a learning opportunity.	28	3,6	1,1	3,1	1,1	-0,5	24	3,5	0,8	3,0	1,0	-0,5
Learning with others, including peers and mentors.	28	3,7	1,1	3,4	1,0		24	3,4	0,8	3,1	0,8	
Reflecting and learning from both success and failure (your own and other people's).	28	3,4	1,2	3,4	1,0		24	3,3	0,8	3,0	0,9	

Similarities within employer ratings and within alumni ratings are acting and working independently to achieve goals, stick to intentions and carry out planned tasks -0.3, working together and cooperate with others to develop ideas and turn them into action -0.4, learning with others, including peers and mentors

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

-0.3. The most striking differences can be seen at the item as networking with others to organise skills and expertise needed for goal attainment -0.7 in alumni section.

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

4.4. Dimension "Digital Skills"

Table 1: Dimension "Digital skills"	Employer						Alumni					
		Importance		Graduate level		I ± GL		Importance		Graduate level		I ± GL
	N	Mean	SD	Mean	SD		N	Mean	SD	Mean	SD	
Items												
Using data and information from digital environments to assess the potential of ideas.	28	3,6	1,1	3,3	0,9	-0,4	24	3,6	0,7	3,2	0,6	-0,4
Deploying digital media, apps or web-based tools for marketing.	28	3,6	1,2	3,3	1,1	-0,4	24	3,8	0,7	3,2	0,9	-0,6
Using knowledge on automation and artificial intelligence for improving products, processes and services.	28	3,7	1,0	3,2	1,0	-0,5	24	3,7	0,8	3,2	0,8	-0,5
Understanding and using information from the web and other digital sources to identify customer needs.	28	3,7	0,9	3,4	1,0	-0,3	24	3,6	0,8	3,1	0,7	-0,5
Using software apps and digital tools for managing collaboration with teams and partners.	28	3,9	0,8	3,3	1,0	-0,6	24	3,5	0,8	3,0	1,0	-0,5

Similarities within employer ratings and within alumni ratings are Using data and information from digital environments to assess the potential of ideas -0.4, Using knowledge on automation and artificial intelligence for improving products, processes and services -0.5. The most striking differences can be seen at the item as Deploying digital media, apps or web-based tools for marketing -0.6 in alumni section and Using software apps and digital tools for managing collaboration with teams and partners -0.6.

4.5. Dimension "Financial Skills"

Table 1: Dimension "Financial skills"	Employer						Alumni					
		Importance		Graduate level		I ± GL		Importance		Graduate level		I ± GL
	N	Mean	SD	Mean	SD		N	Mean	SD	Mean	SD	
Items												
Knowing how to read and analyse a balance sheet.	28	3,7	1,1	3,2	1,0	-0,5	24	3,5	0,7	3,2	0,9	-0,3
Drawing conclusions and deriving potential courses of action from balance sheets.	28	3,6	1,1	3,2	1,0	-0,4	24	3,5	0,7	3,2	0,9	-0,3
Managing cash flow.	28	3,6	1,1	3,2	1,1	-0,4	24	3,5	0,7	3,0	1,0	-0,4

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

Identifying and meeting the organization's financial needs in the short and long term	28	3,6	1,0	3,1	0,9	-0,4	24	3,4	0,7	2,9	0,9	-0,5
Calculating costs, cost prices, and margins.	28	3,6	1,0	3,2	1,0	-0,4	24	3,5	0,7	3,0	1,0	-0,6

Similarities within employer ratings and within alumni rating is managing cash flow -0.4. The highest differences between importance and graduate level highlighted in red colour. This item is calculating costs, cost prices and margins is -0.6.

4.6. Dimension "Marketing"

Table 1: Dimension "MARKETING"	**Employer**						**Alumni**					
		Importance		**Graduate level**		**I ± GL**		**Importance**		**Graduate level**		**I ± GL**
	N	Mean	SD	Mean	SD		N	Mean	SD	Mean	SD	
Items												
Deploying sales arguments with a view to persuading clients to buy.	28	3,3	1,3	3,3	0,7	0,0	24	3,6	0,8	3,3	0,6	-0,3
Negotiating while using specific techniques	28	3,7	0,9	3,3	0,7	-0,4	24	4,0	0,6	3,2	0,8	-0,8
Developing commercial strategies and means whereby to attract new clients	28	3,6	1,2	3,5	1,0	-0,1	24	3,8	0,6	3,1	0,7	-0,7
Using specific techniques to encourage client loyalty.	28	3,7	0,9	3,3	0,9	-0,4	24	3,6	0,7	3,0	0,9	-0,6
Creating a positive image of the firm, promoting an ethical image of the firm.	28	3,8	1,0	3,4	0,9	-0,4	24	3,8	0,7	3,0	0,9	-0,8
Building relationships of trust with clients and partners.	28	3,9	1,0	3,6	0,9	-0,4	24	3,7	0,8	3,1	0,9	-0,6

The highest differences between importance and graduate level highlighted in red colour. All of items in alumni section is below than -0.6

4.7. Dimension "Innovation management"

Table 1: Dimension "Innovation management"	**Employer**				**Alumni**			
		Importance	**Graduate level**	**I ± GL**		**Importance**	**Graduate level**	**I ± GL**

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

	N	Mean	SD	Mean	SD		N	Mean	SD	Mean	SD	
Items												
Developing innovation strategies.	28	3,5	1,1	3,2	1,0	-0,4	24	3,6	0,7	3,0	0,8	-0,6
Analysing the market potentials of ideas and concepts for new products, processes and services.	28	3,8	1,0	3,2	1,1	-0,6	24	3,5	0,7	3,0	0,9	-0,5
Planning, implementing and controlling innovation processes with project management methods.	28	3,5	1,0	3,3	1,1	-0,2	24	3,5	0,7	3,2	1,0	-0,3
Selecting and applying methods for exchange of ideas and knowledge in the innovation process.	28	3,6	1,0	3,1	1,1	-0,6	24	3,5	0,8	3,0	1,0	-0,5
Managing collaboration between customers, suppliers and development partners in the innovation process.	28	3,6	1,2	3,1	1,1	-0,5	24	3,5	0,7	3,2	1,1	-0,3

The highest differences between importance and graduate level highlighted in red colour. These items are Analysing the market potentials of ideas and concepts for new products, processes and services -0.6, Selecting and applying methods for exchange of ideas and knowledge in the innovation process -0.6 in employer section and Developing innovation strategies -0.6 in alumni section.

5. Identified gaps and skills mismatches

Table 1: Skills gaps as rated by employers and alumni

Main dimensions of competencies	rated as skills gap by employer **and** alumni	rated skills gap by employers	rated skills gap by alumni
1. Ideas	• Exploring and experiment with innovative approaches.	Developing better solutions to existing and new challenges. Exploring and experiment with innovative approaches. Developing a vision to turn ideas into action. Acting responsible.	• Exploring and experiment with innovative approaches. • Assessing the consequences of ideas that bring value on the target community, the market, society and the environment.
2. Resources	•	Believing in one ‘s own ability to influence the course of events, despite uncertainty, setbacks and temporary failures.	• Inspiring and enthusing relevant stakeholders.
3. Actions	•	•	• Networking with others to organise skills and expertise needed for goal attainment.

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

4. Digital skills		Using software apps and digital tools for managing collaboration with teams and partners.	• Deploying digital media, apps or web-based tools for marketing
5. Financial skills	•	•	• Calculating costs, cost prices, and margins.
6. Marketing	•	•	• Negotiating while using specific techniques • Developing commercial strategies and means whereby to attract new clients • Using specific techniques to encourage client loyalty. • Creating a positive image of the firm, promoting an ethical image of the firm. • Building relationships of trust with clients and partners.
7. Innovation Management	•	• Analysing the market potentials of ideas and concepts for new products, processes and services. • Selecting and applying methods for exchange of ideas and knowledge in the innovation process.	• Developing innovation strategies.

6. Conclusions: Steps to further develop entrepreneurship education at the university

In conclusion, it should be pointed that high-quality and practice-oriented courses included in undergraduate, graduate and doctoral programs greatly contribute to the employment of graduates.

It should be noted that the university may offer additional programs in entrepreneurship and business for students. It should also be borne in mind that courses in entrepreneurship skills training, production of scientific ideas and its commercialization for graduates will be very necessary and useful. As part of the bachelor's and master's degree in all areas / specialties at the Institute, sufficient work is carried out to form entrepreneurial competencies, in the format of the choice of Minor courses. Since these disciplines are elective ones, not all students choose them and include them in their curricula. As a result, not all graduate students have sufficient entrepreneurship competences. To reach more students

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP

in the development of entrepreneurial skills, it is necessary to motivate them by providing more information and offering additional bonuses.

From the point of view of teachers in the field of entrepreneurship, all study programs of an economic direction, as well as programs related to the production, storage and processing of products, are suitable for the inclusion of entrepreneurship skills. The professional activity of graduates of these specialties is directly related to entrepreneurship in the field of economics, production, processing and export of products. By acquiring entrepreneurial knowledge, they can economically increase the efficiency of their work. To implement the presented measures for the introduction of additional curricula that form entrepreneurial skills, as well as financial skills and marketing, the support of the heads of departments, heads of educational programs, as well as the vice-rector for academic work and structural divisions of the Institute is required.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Co-funded by the Erasmus+ Programme of the European Union
TRIGGER: 617309-EPP-1-2020-1-SK-EPPKA2-CBHE-JP