



*"Be Competent in Entrepreneurship"*



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## 1 Introduction

For exploration of divergences between actual and required entrepreneurship competencies (ECs) of target groups needful for meeting societal challenges the methodology has been developed for understanding the divergence between actual and required competencies among the main target groups: students, employees; and SMEs managers, and staff involved in teaching/ coaching / mentoring (in universities and companies). This is important for meeting societal challenges and create a basis for co-creating with KA partners innovative approaches for supporting the target groups of being competent in entrepreneurship. Particularly, the research aims to develop a comprehensive understanding of ECs among students from company-level perspective and specifics required by employers and to contrast them with both entrepreneurship theoretical theorem and actual students’ skills and knowledge including needs and preferences of students (e.g. for generation Y, born in 1982-2005) and the impact of technological changes and globalisation.

All research were carried out during the interventions in universities or joint learning activities between university and companies or special training courses (SME managers, teaching staff). Among qualitative research the individual interviews were carried out among employers, the interviews planned employees and students were merged with the survey among students and employees. Results of needs analysis are planned to use as a basement for the development of university study programmes, development of “expansive learning environment” at the workplaces, training programmes for SME managers and elaboration of innovative teaching approaches (and materials) for universities and companies.

The research of partners from different regions (Nordic, Central and South European countries) is enriching the knowledge and understanding about cultural differences and the needs for the development of ECs of different target groups, who are operating in different environments. This allows also to achieve better project results, outputs and outcomes for dissemination for wider audience in countries and cross-border. The project research results are contributing for better understanding the divergence between actual and required competencies among students and employees, the required competencies of SME managers, and staff involved in teaching/ coaching, and also the development of “expansive learning environment” for supporting the development of ECs among employees in businesses.

The research methodology includes research design, the description of self-assessment tools for studenmts, teachers and workplaces as learning environments adopted from the

theoretical sources previously used in the research. The interview guidelines for employers and SME managers, and also the mapping template for Entrepreneurship Education courses elaborated for the project are brought in appendixes.

## 2 Research design

The starting point for the research strategy is mapping of the current situation in HEI and at the workplaces of enterprises, and identifying the skills' gap in ECs for the development of education in HEIs. The compilation of self-assessment tools, development of study programmes and innovative teaching strategies are relying on the Estonian entrepreneurship competence model (Venesaar et al, 2018, 2022). Based on the definition of entrepreneurship, the concept of entrepreneurship competence can be conceived as a comprehensive set of knowledge, skills and attitudes that are essential for value creation during the implementation of ideas, for the development of entrepreneurial mind-set of learners, and sustainable coping with work and everyday life (see Figure). The core of the model for entrepreneurship education is the area of acting upon opportunities, the success of which depends on the personal competencies of individual (i.e. self-management, creative thinking and finding solutions, and managing social situations). This model has undergone the first empirical test. The survey among students' self-assessment has highlighted that the relationships between assessed competencies are logical and confirmed the results of previous research on different sub-competencies (Venesaar et al, 2018). Current project is an opportunity to investigate ECs among different target groups by using the self-assessment tool among students, employees and entrepreneurs and to develop a new and innovative study programmes and teaching approaches for HEIs and businesses in different countries.

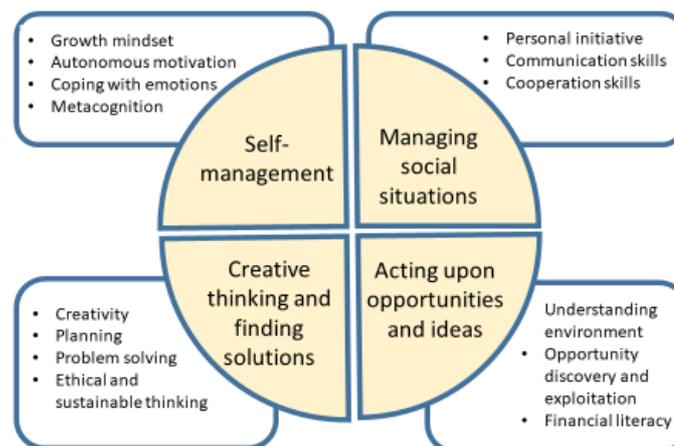


Figure 1. Entrepreneurship competence model. Source: Estonian entrepreneurship programme (2018).

For better understanding the novelty and innovation of new study/training programmes as well as the use of teaching and learning approaches planned in this project, see next Figure. The principle of embedding the development of entrepreneurship sub-competencies such as self-management, creative thinking and finding solutions and managing social situations into the entrepreneurship process in entrepreneurship education is illustrated. This approach can be

supported by integrating self-assessment for learning into the study process. The new and innovative methodology for that is elaborated under the Estonian entrepreneurship programme and will be piloted, improved and disseminated among partner universities during the project lifetime.. When in entrepreneurship courses the opportunity oriented study process is supporting such an approach, then embedding ECs into the subject-specific courses requires different approach, i.e. to consider the aim and the content of each course, which can be very different in different specialities.

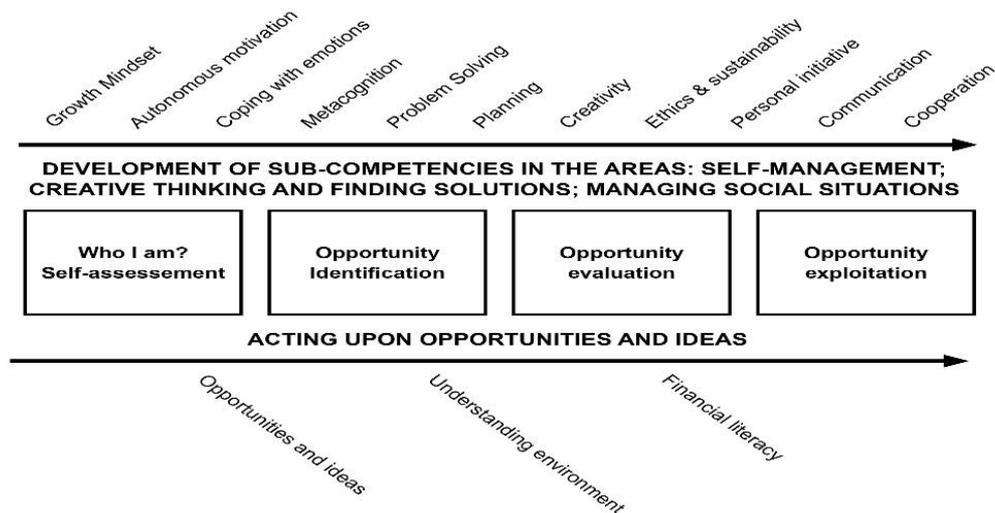


Figure 2. The example of embedding the development of ECs into the study programme of entrepreneurship education. Source: Estonian entrepreneurship programme (2018).

In this project, we investigate educational institutions (participating universities) and workplaces (participating companies) also as learning environments based on Fuller and Unwin's (2003, 2004) expansive-restrictive framework and Eraut's (2000, 2004) work. Fuller and Unwin's (2003) framework is related to the sociocultural perspective that connects learning to organisational conditions and practices (Ellström, 2011); however, learner factors influence learning in the workplace through interpretation of those factors (e.g., Felstead, Gallie, Green, & Inanc, 2015). To measure these dimensions, we use the Workplace as a Learning Environment (WLE) survey (James & Holmes, 2012) designed to identify aspects of the workplace that offer more expansive working environments and thereby provide better opportunities for developing skills and knowledge.

Based on abovementioned methodology all WPs are connected with each other. Based on the needs analysis (WP1), the implementation WPs (3,4,5) provide the project output such as an innovative study and training programmes (WP3, 5), the methodology (e.g. online guidelines) for staff involved in teaching, and for training of SME managers, and the catalogue of actions at the workplaces (WP4).

For investigation of ECs among students and employees (incl SMEs) the self-assessment tools (SECQ, RECQ), the guideline for interviewing employers (EMPIG) and for mapping entrepreneurship education courses were elaborated. The collected data is analysed using SPSS programme

The entrepreneurship competence self-assessments among students and employees are analysed using statistical analysis (mean, Standard Deviation), reliability analysis (Cronbach's Alpha) and Correlation (Spearman Correlation). The One-Sample T-test used to analyse the significance of difference between the entrepreneurship competence assessments of students and employees.

### 3 Research methodology description (quantitative and qualitative)

The objectives of the research methodology are:

- investigate ECs among students and possible gaps against employers' demands;
- investigate competencies needful for SME managers in relation to their entrepreneurship competencies and internationalisation of businesses;
- investigate of the workplace environment in companies for creating "expansive learning environment" and developing employees ECs;
- investigate teaching approaches and possible gaps in relation to the development of ECs

The research design and methodology (quantitative and qualitative) is developed for investigating the target groups to identify their societal demands in relation to ECs and taking into account the macro-level changes. The survey instruments are:

- Self-assessment tool for students and employees (SECQ), merged with the self-assessment tool for employees for assessment workplaces as learning environment (WLE)
- Interview guidelines for employers /incl SME managers (EMPIG)
- Self-assessment tool for staff involved in teaching at university (TECQ)

The self-assessment tools include the questions and statements determining the level of needful competencies of target groups and for employees and SME managers questions about workplace as a learning environment. The semi-structured interview guidelines will be used for interviews among employers (incl SME managers) for specifying the ECs required for successfully operating at the workplaces and for graduates enabling a smooth entering into the working life considering the macro-level changes.

The preliminary work includes the collection of information about the assessment practices and theoretically/empirically tested tools/ guidelines for self-assessment of ECs from previous research in the field, including the adjustment of self-assessment tools elaborated under the entrepreneurship programme in Estonia (2018). But these tools have been piloted only among university students and staff involved in teaching. In the current project, the SECQ is adjusted for use among employees and managers of SMEs in the context of different countries, which is a step forward to widen the use of a self-assessment tool for learning and measuring the level of EC and to collect cross-border experience from partner countries. Also the questions of previously planned idea of employees interview guide (EMIG) is integrated into SECQ. In this stage the state of the art of university curricula and entrepreneurship education courses and training opportunities, the experience on the development of learning environments and teaching and learning approaches were discussed with partner universities concerning the issues of supporting the development of ECs among target groups.

An additional value is that the use of a self-assessment tool for students and employees (including SME managers) makes it possible to identify the skills gap between university learning outcomes and practical needs. The SECQ includes questions for assessing fourteen sub-competencies of the entrepreneurship competence model in four areas (self-management; value creative thinking; managing social situations; acting upon opportunities and ideas) using 5-point self-rating response scale (1 = totally disagree; 5 = totally agree). SECQ includes questions for assessing fourteen sub-competencies, the number of items and authors of theoretical sources adopted (sample statements in parenthesis):

- *Metacognition* was measured with 3 items adapted from Pintrich (1991) (e.g. 'I analyse what I already know about this situation');

- *Growth (fixed) mindset* was measured with 3 items adapted from Yeager and Dweck (2012) (e.g. 'Entrepreneurship is something you cannot change much with learning and education');
- *Autonomous motivation* was assessed with 4 items (Weinstein, Przybylski and Ryan, 2012) (e.g. 'My actions are congruent with who I really am');
- *Emotion regulation* was assessed with 3 items adapted from Garnefski and Kraaij (2006) (e.g. 'I can manage my feelings if something goes wrong');
- *Creativity* was measured with 3 items, (Karwowski, 2014) (e.g. 'I believe in my creative abilities');
- *Problem solving* was assessed with 4 items (Basadur, 1995; Basadur & Goldsby, 2016) (e.g. 'I ask myself lots of different questions about the nature of the problem');
- *Planning* was measured with 4 items inspired in Dawson and Guare (2011) and Cowan (2014) (e.g. 'I typically break big tasks down into subtasks and timelines');
- *Ethical and sustainable thinking* was measured with 4 items (Ploum, Blok, Lans and Omta, 2017) (e.g. 'I can identify well the opportunities of sustainable development');
- *Personal initiative* was measured with 3 items, (Frese, 2009 and Frese & Fay, 2001) (e.g. 'I have been usually a powerful force for constructive change');
- *Communication skills* was assessed with 3 items, (Zhou and Ee, 2012) (e.g. 'I am tolerant of my partners' mistakes');
- *Cooperation skills* was also measured with 3 items, (Lower, Newman and Anderson-Butcher, 2015) (e.g. 'I am able to cooperate with different kinds of people');
- *Opportunity discovery and exploitation* was measured with 4 items adapted from Tang, Kacmar and Busenitz (2012) and Kyndt and Baert (2015) (e.g. 'I can recognise the untapped opportunities');
- *Understanding environment* was measured with 3 items (Man *et al.*, 2008) (e.g. 'I am aware of the development trends in my specialty/area of activity');
- *Financial literacy* was measured with 4 items, (Kyndt and Baert, 2015; OECD, 2016) (e.g. 'Before I invest money, I examine other possibilities').

In addition, the Workplace as a Learning Environment (WLE) survey instrument (James & Holmes, 2012) has been merged with SECQ for investigation on how employees and company managers are assessing the workplace environment as "expansive learning environment" to support ECs' development. The WLE survey includes 21 items on a 5-point self-rating response scale (1 = totally disagree; 5 = totally agree). The survey addresses seven main areas that are related to expansive learning environments (sample statements in parenthesis):

1. Participation and understanding of the workplace (e.g., 'I understand the goals and aims of the workplace').
2. Task performance (e.g., 'I use a range of skills in my work').
3. Access to resources to help learning (e.g., 'I have a mentor/coach at work').
4. Judgment, decision making, problem solving and reflection (e.g., 'I have time to reflect on my work').
5. Experience, task transition and career progression (e.g., 'I give time to work through tasks to develop my skills and knowledge').
6. Status as both a worker and a learner (e.g., 'I am recognised as a learner in the workplace').
7. Organisational development (e.g., 'The business' goals consider my goals').

TECQ among staff involved in teaching/coaching/mentoring in universities is meant for identifying their teaching approaches, the experience of creating learning environments and directing learning processes.

1. Growth mindset (e.g. 'Truly wise students can learn without working hard'; 'Really creative talent is innate and constant feature for the person's whole life').
2. Creating learning environment (e.g. 'I let students take an active role in studying and it's planning')
3. Attitude toward students' entrepreneurial attitude and behaviour (e.g. 'I consider it important to support students' enterprising attitudes and behaviour in my course').
4. The use of teaching methods (e.g. 'Lectures').

EMPIG is elaborated for mapping a general picture of employers opinions about needful competencies for employees and graduates, when considering macro-economic changes (focusing on globalisation and demographic change). EMPIG elaborated at the beginning of the project is creating an opportunity to collect valuable qualitative information from

employers in addition to the survey, and learn from the experience of SMEs, incl born globals. The employers' opinion about their preferences in graduate selection is deepening the knowledge about the requirements needful for university graduates in their career choices. The semistructured EMPIG includes four themes as follows:

1. Changes in business environment (e.g. 'What are the biggest changes in business environment that you observed in last 5 years?').
2. Entrepreneurial competences (e.g. 'What are currently the most desired competences in working environment, compared to the past and predictions about the future?').
3. Internationalisation of businesses & born globals (e.g. 'What competences are related to internationalisation processes at the company?').
4. Generation change in business (e.g. 'What are the strongest points of a new generation as employees?'; 'What are the weakest points of a new generation as employees?').

The guideline for additional research among SME managers (EMPIG) is specified for identification of competencies in relation to changes through globalisation (i.e. internationalisation).

The self-assessment tools are used for collecting information for the needs analysis, which has already used during M2-M13 and will be used during the interventions of projet lifetime for the development of study programmes as well as creating an appropriate teaching and learning approaches of entrepreneurial pedagogy to support the development of ECs of learners (students, employees and entrepreneurs). As a result, the entrepreneurship competencies of graduates will be supported to develop according to employers' demand enabling smooth transition of graduates to working life.

The self-assessment tool for students and employees, and teachers as well as the tool for investigating of the workplace environment in companies for creating "expansive learning environment" are adopted from the previously existing tools. For investigating employers for understanding their demand for the ECs of employees and competencies needful for SME managers in relation to internationalisation of businesses was elaborated particularly for this Project. Also the template for mapping entrepreneurship courses is a new version for the Project. The latter tools are described in appendix (1-3).

## 4 Conclusion and implications

The research methodology is built on to better understand what entrepreneurship competencies align with employers needs and societal challenges of target groups: students, employees and SME managers. The empirical evidence about the workplace environment gives the directions for companies on how to develop the creation "expansive learning environment". In parallel the teaching approaches and possible gaps in relation to the development of ECs were investigated in partner countries, which will be a basis for the development of Entrepreneurship education.

The countries for current Knowledge Alliance were chosen from different regions (Nordic, Central and South European countries) enriching the knowledge and understanding about cultural differences and the needs for the development of ECs of different target groups, who are operating in different environments. This allows also to achieve better project results, outputs and outcomes for dissemination for wider audience in countries and cross-border. During the current project the European experience is collected about the content development of study programmes and entrepreneurial pedagogy to compare and find new ideas for the development of entrepreneurship education in partner universities, being competitive with other European countries and world-wide. The international experience is achieved also

because a number of partner companies and associated partners are international businesses operating in or exporting to different European and other countries. The project contributes also to the empirical evidence and development of roadmap on how to develop “expansive learning environment” for supporting the development of ECs among employees in businesses of different fields and size, and can be used also in HEIs.

## **Appendix 1. EMPLOYER’S INTERVIEW GUIDE (EMPIG)**

**About the project:** these interview guidelines are the tool developed within the frames of the project titled *Be Competent in Entrepreneurship: knowledge alliances for developing entrepreneurship competencies for the benefit of higher education and business/BeComE*, financed by the European Commission through Erasmus+ programme, KA2: Cooperation for innovation and the exchange of good practices - Knowledge Alliances. The aim of the project is to excel entrepreneurship education in higher education by creating effective knowledge alliances between higher education institutions and businesses.

**The aim of the interview:** the rationale of this interview is to learn from the experience of employers in diverse European countries about the competences currently sought on the labour market in order to develop new training programmes that would address better the demands of business environment and would develop entrepreneurial competences.

**Definition of a target group:** 20 employers in each of 5 countries participating in the project, including SME managers;

**Type of interview:** open-ended, standardized interview with structured questions;

**Use of data collection & terms of confidentiality:** The information collected will be used for the development of study programmes as well as creating an appropriate teaching and learning approaches to support the development of entrepreneurial competences of learners (students, employees and entrepreneurs). We provide the protection of personal data and the guarantee of anonymity.

**Time:** The interview should last about 60 minutes.

**Structure of the Interview:** The interview is composed of 17 predetermined questions relating to four themes: general changes in business environment, entrepreneurial competences, internationalisation of business, as well as to the meaning of the generation change for business. SMEs owners receive extra two questions relating to business succession.

### **Information about the company and the respondent:**

Name of a  
company: .....

.....

Year of  
establishment: .....

.....

Country: .....  
.....  
Size of a company  
(micro/small/medium/large): .....  
....  
Number of  
employees: .....  
.....  
Sector/industry: .....  
.....  
Internationalisation  
experience: .....  
.....  
Interviewee (name, position, age,  
email): .....

## QUESTIONS:

### Theme: Changes in business environment

- Q1:** What are the biggest changes in business environment that you observed in last 5 years?  
**Q2:** How do these changes impact employability at your company?  
**Q3:** What are the trends in business environment that will influence employability in coming years, in particular employability of graduates?  
**Q4:** What is the role of education in responding to changes in business environment?

### Theme: Entrepreneurial competences

- Q5:** What are currently the most desired competences in working environment, compared to the past and what are your predictions about the future?  
**Q6:** What competences are needed to respond to the changes in business environment?  
**Q7:** Which of them are most lacking among employees?  
**Q8:** How would you define entrepreneurial competences?  
**Q9:** Are entrepreneurial competences taken into consideration during recruitment at your company? If yes, to what extent and how they are further used?

### Theme: Internationalisation of businesses & born globals

- Q10:** What competences are related to internationalisation processes at the company?  
**Q11:** Do you see any link between entrepreneurial competences and internationalisation processes at the company? If yes, could you explain how they are related.  
**Q12:** Do you find your employees being more open for internationalisation processes taking place in the company now than 5 years ago?

### Theme: Generation change in business

- Q13:** What major differences do you identify between competences of fresh graduates currently employed and employees with longer working record?  
**Q14:** What are the consequences of these differences for working life?  
**Q15:** What are the strongest points of a new generation as employees?

**Q16:** What are the weakest points of a new generation as employees?

**Q17:** Do you consider new generation to have more or less entrepreneurial competences, if compared to earlier generations?

*Extra questions in case an interviewee is a SME founder and CEO*

**Q18:** What are the biggest challenges of business succession?

**Q19:** What competences do you find the most important for a smooth business succession between generations?

## **Appendix 2. GUIDE TO UNDERSTAND A NEEDFUL ENTREPRENEURIAL COMPETENCES FOR SME MANAGERS**

*This document describes the methodology to be applied to recognize essential entrepreneurial competences from the point of view of managers, with a particular focus on SME managers.*

Information about the company and the respondent: Name of a company: .....  
..... Year of establishment: .....  
Country: .....  
..... Size of a company (micro/small/medium): .....  
..... Number of employees: .....  
Sector/industry: .....  
..... Internationalisation experience: .....  
..... Interviewee (name, position, age, email): .....

**QUESTIONS:**

**QUESTIONS:**

*Theme: Changes in business environment*

**Q1:** What are the biggest changes in business environment that you observed in last 5 years?

**Q2:** How do these changes impact employability at your company?

**Q3:** What are the trends in business environment that will influence employability in coming years, in particular employability of graduates?

**Q4:** What is the role of education in responding to changes in business environment?

*(Additionally, for Q4, you can ask about forms of education that a respondent finds the most relevant for trainings of SMEs managers, like: traditional live lectures, on-line workshops, trainings, video*

podcasts, practical textbooks for individual study, case studies with professional comments, interactive scripts)

Theme: Entrepreneurial competences

- Q5:** What are currently the most desired competences in working environment, compared to the past and predictions about the future?  
**Q6:** Which of them are most lacking among employees?  
**Q7:** How would you define entrepreneurial competences?  
**Q8:** Are entrepreneurial competences taken into consideration during recruitment at your company? If yes, to what extent and how they are further used?

Theme: Internationalisation of businesses

- Q9:** What competences are related to internationalisation processes at the company?  
**Q10:** Do you see any link between entrepreneurial competences and internationalisation processes at the company? If yes, could you explain how they are related.  
*(1. Please wait for some answers first, then you may relate to the following skills related to internationalisation opportunity recognition, evaluation of business ideas, strategic management, marketing skills, financial skills*  
*2. You can also ask about the areas of interest in internationalisation, like: business models and phases of internationalization, foreign market research, born global firms, international marketing financing internationalization of SMEs, regulations, institutions)*

Theme: Generation change in business

- Q11:** What major differences do you identify between competences of fresh graduates currently employed and employees with longer working record?  
**Q12:** What are the consequences of these differences for working life?  
**Q13:** What are the strongest points of a new generation as employees?  
**Q14:** What are the weakest points of a new generation as employees?  
**Q15:** Do you consider new generation to have more or less entrepreneurial competences, if compared to earlier generations?

*(Additionally, you can ask about the relation between internationalisation and generation change in business)*

## **Appendix 3. MAPPING ENTREPRENEURSHIP EDUCATION COURSES**

Name of school, address:

Total number of entrepreneurship education courses:

Total number of curricula at the university:

In how many curricula entrepreneurship education (EE) course is included:

How many students have participated in EE in 2019/2020:

The description of entrepreneurship courses and EE teachers:

Description of EE courses available for students
--

<b>Compulsory EE courses</b>	
<b>Course 1</b>	
Name of the course	
The teaching model used at the course: is it <i>about, for or through entrepreneurship</i>	
Study level	
Form of study (daytime, session-based/distance)	
Amount (ECTS)	
No of contact hours (lecture, exercises) per week/semester	
Aim	
Learning outcomes	
Course content shortly	
Language	
E-support (e.g. Moodle etc)	
Involvement of entrepreneurs and/or mentors in study process (describe, how)	
<b>Teacher characteristics</b>	
Speciality	
Education	
Working years as a teacher	
Experience in entrepreneurship /years	
Experience in working in enterprise/ years	
<b>Course 2</b>	
etc	
<b>Elective EE courses</b>	
<b>Course 1</b>	
Name of the course	
The teaching model used at the course: is it <i>about, for or through entrepreneurship</i>	
Study level	
Form of study (daytime, session-based/distance)	
Amount (ECTS)	
No of contact hours (lecture, exercises) per week/semester	
Aim	
Learning outcomes	
Course content shortly	
Language	
E-support (e.g. Moodle etc)	
Involvement of entrepreneurs and/or mentors in study process (describe, how)	
<b>Teacher characteristics</b>	
Speciality	
Education	
Working years as a teacher	
Experience in entrepreneurship /years	
Experience in working in enterprise(s)/ years	
<b>Course 2</b>	
etc	
<b>Extra-curricula EE courses</b>	
<b>Course 1</b>	
Name of the course	
The teaching model used at the course: is it <i>about, for or through entrepreneurship</i>	
Study level	
Form of study (daytime, session-based/distance)	
Amount (ECTS)	
No of contact hours (lecture, exercises) per week/semester	

Aim	
Learning outcomes	
Course content shortly	
Language	
E-support (e.g. Moodle etc)	
Involvement of entrepreneurs and/or mentors in study process (describe, how)	
<b>Teacher characteristics</b>	
Speciality	
Education	
Working years as a teacher	
Experience in entrepreneurship /years	
Experience in working in enterprise/ years	
<b>Course 2</b>	
etc	

Note:

Same as above

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Please evaluate entrepreneurship education in your University. What is good, and what aspects need to be developed further. Please express also your opinion on what is needful (e.g. which support, knowledge etc) for the development of EE in your University?