Entrepreneurship Competence
Agrifood industry

EntreComp Food

Co-funded
by the COSME programme
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Deliverable:

D4.1 - New curricula and adapted courses (content)

Leading partner: **UL- BF**

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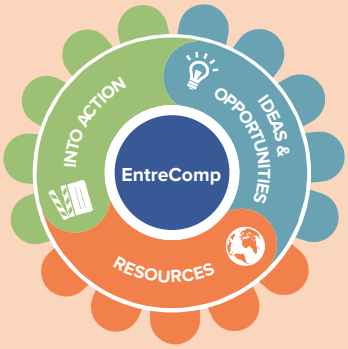
Be curious and open Be determined Team up Develop ideas Use resources responsibly Accept diversity Be innovative Be resilient Imagine Listen actively Think strategically Make the most of your time Guide action Learn by doing Behave ethically Learn from mistakes Don´t give up Think sustainably Reflect Assess impact Get support



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Introduction

EntreComp project is focused on developing entrepreneurship competences during different levels of study (e.g. BSc, MSc, postgraduate, extracurricular). The idea is to empower students with knowledge and skills that allows them to make easier transition from academic to work environment and to give them the edge in the entrepreneurship. International work groups recognised seven main competences that need to be developed for successful entrepreneur in the agri-food area. Main competences in concern of EntreCompFood are as follow: creativity, vision, ethical and sustainable thinking, motivation and perseverance, mobilizing resources, working with others, and learning through experience.

The objective of WP4 is to develop concrete learning opportunities, contents and support services to be offered to the identified target user groups in appropriate settings. The content developed within WP4 will be the frame for the testing phase implemented in WP5.

The basis for the implementation of WP4 is the General EntreCompFood learning pathway (deliverable D3.2) and the Strategic EntreCompFood learning opportunities action plan (deliverable D3.3). The structuring of the learning pathway, edited in WP3, has helped to contextualise the training in our institutions (UL-BF, AgroParisTech and AE). Following the completion of WP3, it is now a matter of assessing the entrepreneurial competences using the EntreComp framework described in this

deliverable and creating appropriate learning content to complement this deliverable. A self-assessment tool on the basis of the competences and learning outcomes as defined in EntreComp, developed by EC by 2019, was expected to be used for assessment of the entrepreneurship of the learners in the EntreCompFood training. As such a tool hasn't been produced, UL-BF has reviewed different materials on EntreComp framework and tested adequacy of several tools (Autodiagnóstico Campus Emprende; HEInnovate self-assessment tool, Myentrecomp Online, CORAL online self-assessment). Basing on the observations a consensus was made to use the evaluation grid built from the EntreComp framework to evaluate and analyse the development of learners' skills individually or in teams during the EntreCompFood training.

The roll-out of EntreCompFood training in our schools is planned in two stages. In the first stage, teachers (for UL-BF and AgroParisTech) and trainers (for AE) will be familiarised with the framework based on the elements built during the project and the evaluation grid built from the EntreComp framework. In the second stage, teachers and trainers will introduce EntreCompFood to the learners and, using the evaluation grid, they will be able to assess the level of their competences and to follow their evolutions and difficulties. From this first step, the level of the target user groups in terms of entrepreneurial skills will be identified to allow the development of more adapted and personalised contents and services/supports.

The deliverable D4.1 aims to describe the content of new curricula and adapted courses and their implementation plan in our institutions. This deliverable is produced by AgroParisTech and UL-BF and will be adapted accordingly at local level at individual institution. It describes the new curricula and adapted courses based on EntreComp intended for university studies (T4.2.1) and training for young entrepreneurs (T4.2.3). The third block of the learning contents, related services and support is being produced as separate deliverables (D4.2 Submission dossier – National editions of the EntreCompFood special award, and D4.3 Description of the new award within the national Ecotrophelia Information Students Manual and contest).

The first part of deliverable D4.1 describes the **5 training levels** for testing the EntreCompFood training. The second part presents the **profiles of the learners identified** to test the framework. Following this part, the **modules** in which the institution intends to deploy and offer the training are described and planned in time in preparation for WP5. The fourth part gives information on the **tools** made available to the learners during the training, to complete the writings of the WP3 deliverables. In the last part of this deliverable, we find the **evaluation grid** built from the EntreComp framework. It will be used to evaluate and analyse the development of learners' skills individually or in teams during the EntreCompFood training.

1. Levels of training identified at partner institutions

Integrating learning about entrepreneurship at the beginning of the training cycles is to encourage its implementation by the learners in their professional projects. The idea is to complement engineering training with an apprenticeship on entrepreneurship like the one offered by the EntreCompFood scheme. In the range of AgroParisTech training courses, we have identified those corresponding to the target area of the EntreCompFood course, i.e. food, and those on 5 learning levels. Similarly, in the range of UL-BF courses those related to food and nutrition have been identified at the bachelor (BSc, level I-III) and masters (MSc, level IV-V) study level.

1.1. AgroParisTech

AgroParisTech offers many multidisciplinary courses, which integrate life and environmental sciences and technologies, engineering sciences, humanities, economics and social sciences.

The **first year** of the engineering cycle (level I) consists of a core curriculum that opens up the learners to issues specific to life science engineering. They learn to mobilise disciplines around key issues, to get to know each other better and to work in groups. The core curriculum consists of scientific and technical disciplines in Life and Environmental Sciences and other disciplines such as Ethics, History and Philosophy of Science, Communication, Languages and Sport. We thought of carrying out the EntreCompFood training in the first year of the engineering cycle as a short module (1 week).

The **second year** (level II) aims to consolidate the common base of engineering skills such as economic, social, management, engineering and mathematical modelling sciences and to deepen a specific field (at choice). The student can choose to follow training sequences abroad in semester 2. At this level of the cycle, EntreCompFood training could be offered in longer projects such as the food innovation project lasting 6 to 8 weeks in order to push the learner to work more closely on his or her entrepreneurial skills

The **third year** (level III) is the year of finalisation of the professional and personal project (bac+5 - Master 2). The student must choose to go deeper into a major, a Master's M2 course or training outside the school (particularly abroad). This is the year of specialisation with a first academic semester (in-depth courses, languages) and a second semester devoted to the end-of-study internship, a real engineering project in a real-life situation, leading to the presentation of a thesis. The courses targeted for testing the system in the 3rd year of the cycle are the specialised majors in Food such as CDP and GPP.

The **Erasmus Mundus Joint Master Degree FIPDes** (level 4) is training a new generation of food professionals capable of working across borders, with an inclusive vision of innovation to create healthy, sustainable and quality food solutions for future generations on this planet.

FIPDes students study, live and gain work experience in four different EU countries. They benefit from the most competitive and innovative learning environments, based on participatory learning, teamwork, R&D projects and practical training in collaboration with pioneering research, culinary and industrial laboratories.

We thought it would be very interesting to test the EntreCompFood training in this type of training. On the one hand the training is European and on the other hand it is specific to food. There are several projects in the training to test the device such as:

- Intercultural Intelligence,
- Project Management and Creativity,
- the Food Hackaton (Sweden) and
- the Junior and Senior R&D Project.

The **MS Masternova** (level IV) is the result of a partnership between AgroParisTech and NEOMA Business School and is located at the interface of life sciences and management disciplines, serving innovative projects in the fields of agri-food, health, biotechnology, plant chemistry, cosmetics, etc.

The programme is resolutely business-oriented and involves both academics and professionals. It alternates theoretical contributions, case studies and concrete projects, conferences and company visits. Masternova prepares its students to work at the crossroads of life sciences and managerial disciplines, in the service of innovative projects.

The courses enable students to understand the challenges of the sectors of activity linked to life sciences, to integrate technical and industrial constraints, and to become familiar with the innovations underway in the sectors. It also allows students to acquire skills in corporate strategy, marketing, finance, corporate law, intellectual property, etc. Finally, it allows the integration of the need for dialogue between science, technology, strategy, marketing and sales.

The idea would therefore be to develop the entrepreneurial skills of students at Bac +5 level with the EntreCompFood training during the Masternova course in courses such as Project Marketing or the Innovation Module.

Finally, on the **last level** (level V): the incubator - the entrepreneur. The people who complete the training at this level are therefore entrepreneurs in the process of developing their project and the training would be a support evaluated over a +/- long period depending on the wishes of the learner and the duration of the incubation of the project.

The Food'Inn Lab, AgroParisTech's incubator, is a real place of exchange and innovation in the food sector. It offers spaces adapted to each start-up's needs, such as analysis laboratories, spaces dedicated to virtual reality, or even 3D printers made available.

Entrepreneurial feasibility refers to the degree to which an individual believes he or she can successfully create a business. It depends on the individual's confidence in his or her ability to carry out the tasks deemed critical to the success of an entrepreneurial process (Boissin et al., 2007). This is why EntreCompFood training could contribute to helping entrepreneurs gain confidence in their skills and success.

1.2. University of Ljubljana – Biotechnical faculty

In the area of food UL-BF offers a bachelor study programme Food Science and Nutrition (BSc) and two masters study programmes Food Science (MSc) and Nutrition (MSc). Students of related BSc and MSc study programmes at UL-BF, e.g. Agronomy, Biotechnology, Animal Science, Microbiology, may broaden their knowledge in agri-food by choosing from the list of elective courses on food and nutrition.

The basic aim of the study programme Food Science and Nutrition (BSc) is to train an expert who is able of a broad understanding of the areas of food and nutrition with emphasis on knowledge and skills related to food, i.e. production, processing, quality and marketing of food and nutrition as a natural continuation of food, for proper, safe and healthy nutrition or normal development and maintenance of human health. The graduate is trained to plan, organize, manage and control food production and human nutrition, as well as some accompanying activities, considering natural, social and environmental principles in food production and the implementation of safe and healthy human nutrition.

Part of the curriculum in the **first year** (level I) is course Introductionary Economics, where students get introduced to economics and economics thinking in food production and biotechnology. A short module here could be devoted to the EntreComp framework within EntreCompFood.

The **second year** (level II) is devoted to basics in nutrition and biochemistry along with engineering skills. Here the course Unit Operations in the Food Industry is proposed to integrate EntreCompFood training for a project-based assignment of group work including experiments with food or food-related samples.

The **third year** (level III) is the last year of BSc study. A significant change in the curriculum for study year 2021/22 was made by introduction of Practical Training – internship in a real-life situation (4 weeks) instead of written final work. Further, development of EntreComp key competences will be promoted through learning by doing and project work at the two elective courses, Food Biotechnology and Winemaking.

The basic aim of the masters study programme **Food Science (MSc)** is to provide in-depth theoretical knowledge of basic natural sciences, food science and food analysis, food safety, food engineering and methods of development and research. The graduate is trained for the most demanding and responsible work in planning, organizing, controlling and managing food production, for quality management with a focus on food hygiene and safety, for creating and developing new technological processes and new products, for work in control and analytical laboratories and inspection services, and for research work.

The basic aim of the study programme **Nutrition (MSc)** is to communicate in-depth theoretical knowledge from basic natural science, food science and analysis of food, food safety, nutritional engineering and methods of development and research. The graduate is qualified for the most demanding and most responsible work in planning, organising, control and leading the production of food, for creating and developing new technological processes and new products, for work in control and analytical laboratories and inspection services, and for research work.

In the first year of both programmes (level IV) Food Safety course will be used to test the EntreCompFood training within a combination of seminar and laboratory work to check the advancement of sustainable thinking and motivation and perservance. Project-Based Learning and competition will be used within seminars in Sensory analysis course to develop students' skills and interest in solving issues on development of quality and acceptable food product from alternative food sources. Students will be introduced to peer to peer assessment presented at the EntreCompFood national award workshop in July 2021. Nutrition engineering is an elective course at level IV, where EntreCompFood training was proposed to improve students' ability for creativity, critical thinking and mobilizing of resources.

1.3. Andalucía Emprende

Andalucía Emprende is a foundation attached to the Ministry of Employment, Training and Autonomous Work of the Junta de Andalucía, whose mission is to promote entrepreneurial initiative and business development. The general objective is to promote and support the creation and consolidation of companies and employment through the provision of quality services.

The services provided are free and are aimed at both entrepreneurs who want to start a business initiative in Andalusia and already established companies that need support for their expansion, modernization and consolidation in the market.

Training is a key aspect for the development and consolidation of your business project. That is why the training given by the more than 800 AE technicians is non-regulated training, adapted to the knowledge and particular needs of each business project, developed through training sessions that will help exploit the entrepreneurial potential and make grow the business.

This service is provided in two ways:

- Basic business training, for those entrepreneurs who do not have previous knowledge about the management of a company. It contemplates a wide range of training subjects, among which are administrative procedures, legal forms, accounting, taxation or marketing.
- Personalized business training, for entrepreneurs who start with previous business knowledge, but wish to expand it. In this case, we adapt the training subjects to the specific needs of each business project. It includes advanced level content, including innovation, cooperation or internationalization.

In Andalucía Emprende, internal personnel are also trained so that their knowledge is constantly updated and contribute to improving the skills and development of entrepreneurs. For this purpose, Internal Training Plans are developed annually that allow us to offer an adequate service to the real demands of society.

In addition, a specialized training service is provided for unemployed people, in order to facilitate their insertion into the labor market. Through this service, theoretical-practical training is offered to students of all levels of the educational system, so that they acquire from their first years, knowledge related to business management, through an innovative and eminently practical methodology for the development of skills in unemployed people; all under the EntreComp framework.

INNICIA Entrepreneurial Culture, is an educational innovation program with which it is intended Stimulate in students the acquisition and development of entrepreneurial skills, considering entrepreneurship as a fundamental strategy in the training of people throughout life. The recipients are the students of Andalusian educational centers, of all educational levels, adapting the use from the resources and tools to the characteristics of each level and teachings.

- ✓ A tool for educational innovation.
- ✓ A response to stimulate students and teachers the need for training and adaptation to new social demands.
- ✓ A mechanism to stimulate the acquisition and development of entrepreneurial skills.

During the first semester of 2021, work has been carried out on two lines of action in the execution of the Program for the Promotion of Entrepreneurial Culture, giving entrepreneurship workshops, visits to companies, collaborating with mentors and as a jury in three Hackathons organized by FP Dual and the University of Malaga.

In addition, work has been done on the design and planning of a new Comprehensive Entrepreneurship Strategy for the next academic year, which contemplates giving the program a spin to adapt it to active methodologies: challenge-based learning, design thinking, collaborative learning, Lean Startup, etc.

that enhances personal skills, using the EntreComp framework. To do this, seven guides have been designed:

1. the framework guide for the Comprehensive Entrepreneurship Strategy,
2. three guides with the Entrepreneurship Kit animation, preparation and activation,
3. the Hackathon for Teachers guide,
4. that of the Ideas for the Future initiative and
5. that of the Entrepreneurship Classrooms for the centers.

The objectives of this program are embodied in "a way of thinking and acting" in which the three dimensions of entrepreneurship are necessarily addressed:

- ✓ Personal entrepreneurship: Make one's life project an active reality. Deepen the knowledge and experience of the entrepreneurial self, discovering and reinforcing their own entrepreneurial skills.
- ✓ Social entrepreneurship: Make a group project a reality through the participation of all the agents involved. Stimulate initiatives that contribute to the improvement of the quality of life, solidarity and the common good.
- ✓ Productive entrepreneurship: Promote the creation of wealth and prosperity for yourself and for others in a respectful and sustainable framework with the environment, stimulating the acquisition of basic skills for employability (soft skills) to face the dynamics of the labor market.

The recipients of the call are the educational centers of Andalusia supported with public funds, with the exception of the university ones, adapting the use of the resources to the characteristics of each level and education.

The objectives of the implementation of the entrepreneurial project are:

- ✓ Support teachers in the development of the curriculum and entrepreneurial skills from an innovative approach. Promote methodologies linked to the promotion of the entrepreneurial spirit.
- ✓ Specify entrepreneurial action from the selection of entrepreneurial assets, integrating the three dimensions of entrepreneurship.
- ✓ Connect the educational system with the environment, valuing experiences and enterprising people.

Participating in the Innicia program requires the preparation and approval of an entrepreneurial project, which will emerge after a process of analysis of reality. With this analysis, needs will be detected, solutions will be proposed and entrepreneurial assets will be evaluated at the educational center level. Through the entrepreneurial project, the center will seek to transform its ideas into actions, explaining the challenge to be achieved, the entrepreneurial assets to be developed and the final product to be achieved.

Number of actions and participants

612 workshops:

- Early childhood education-ESO-Baccalaureate: 5,807 minors
- CFGm + CFGs: 4,837 young people
- University students: 2,094 young people

2. Profile of learners targeted for testing the EntreCompFood integrated curricula

LEVELS 1, 2, 3

3-year engineering cycle

STUDENT

The student profile is a junior profile in entrepreneurship. Young people who are not yet in the labour market and in the learning period have to start preparing themselves for tomorrow, but also to be proactive today. The EntreCompFood training is to be implemented in the course of a project within the learning pathway, the duration and evaluation of which varies with the level of experience.

LEVEL 4

Masternova, FipDES

BACHELOR DEGREE

The profile of the learners in the Mastere is different from the student. These learners have an initial level of basic skills related to entrepreneurship. Practical and theoretical knowledge as well as the internships they have taken during their studies have enabled them to build up this base of skills related to entrepreneurship. The EntreCompFood training should be considered for longer year projects to further develop entrepreneurial skills and to refine the assessment of personal and peer skills.

LEVEL 5

Food'Inn Lab

SELF-EMPLOYED

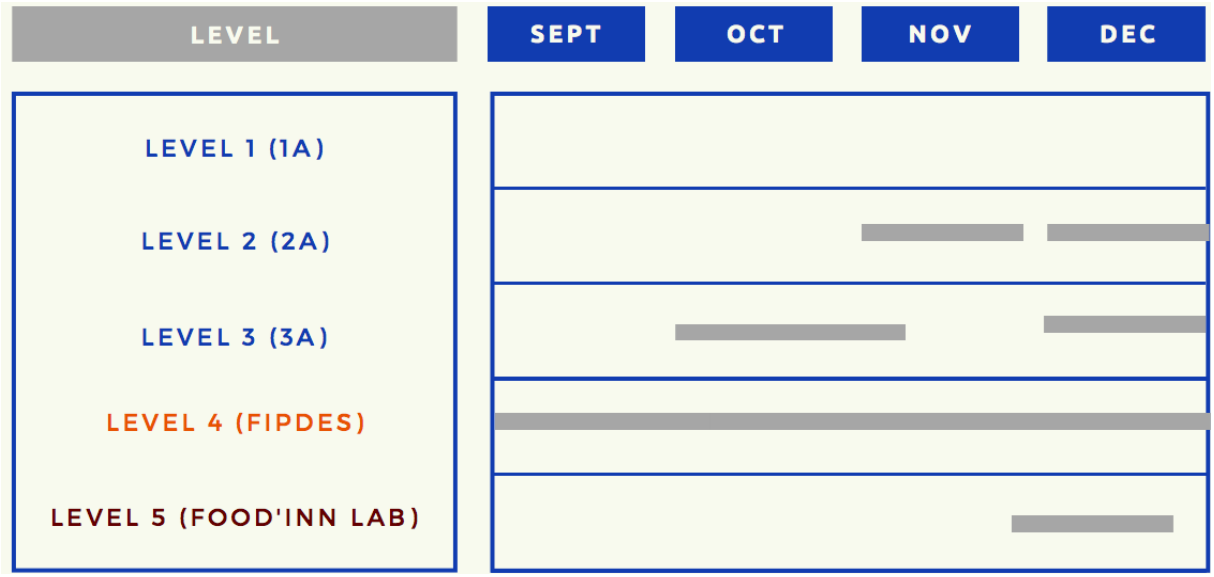
The self-employed profile is the one with the highest level of entrepreneurial skills in relation to the EntreCompFood scheme. The approach to this profile differs from the previous ones because the learner is already in an entrepreneurial process and in a phase of concretising his project. The entrepreneurial learner will be able to follow the EntreCompFood training course and improve his or her skills over a period of time to be determined according to his or her objectives, incubation period and level of progress in the 7 skills identified in the EntreCompFood scheme.

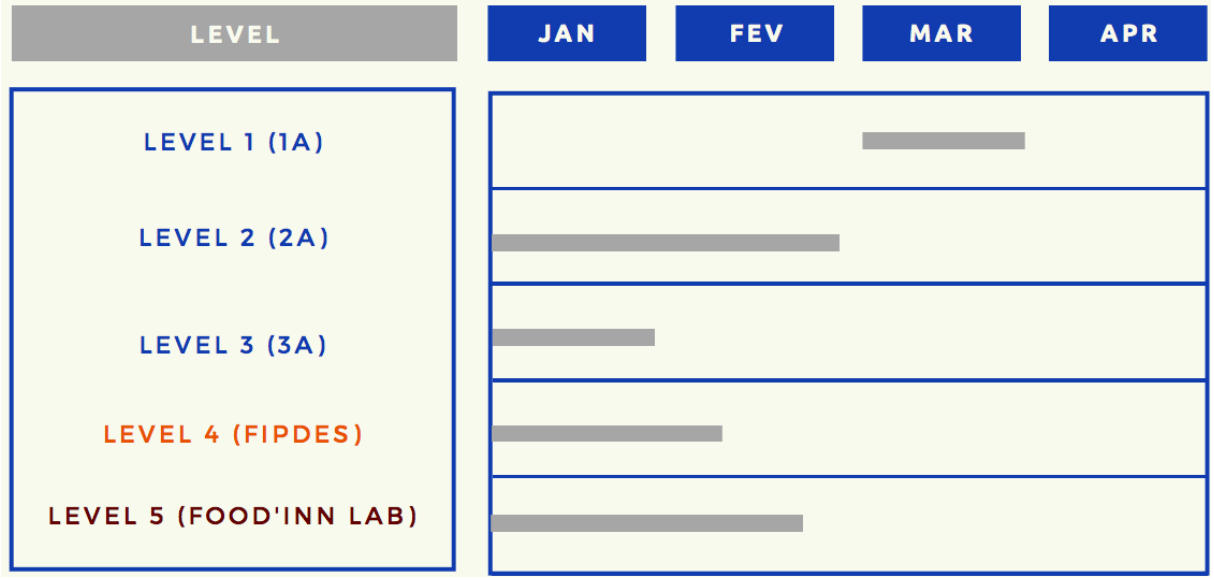
3. Planning of EntreCompFood training sessions according to training levels

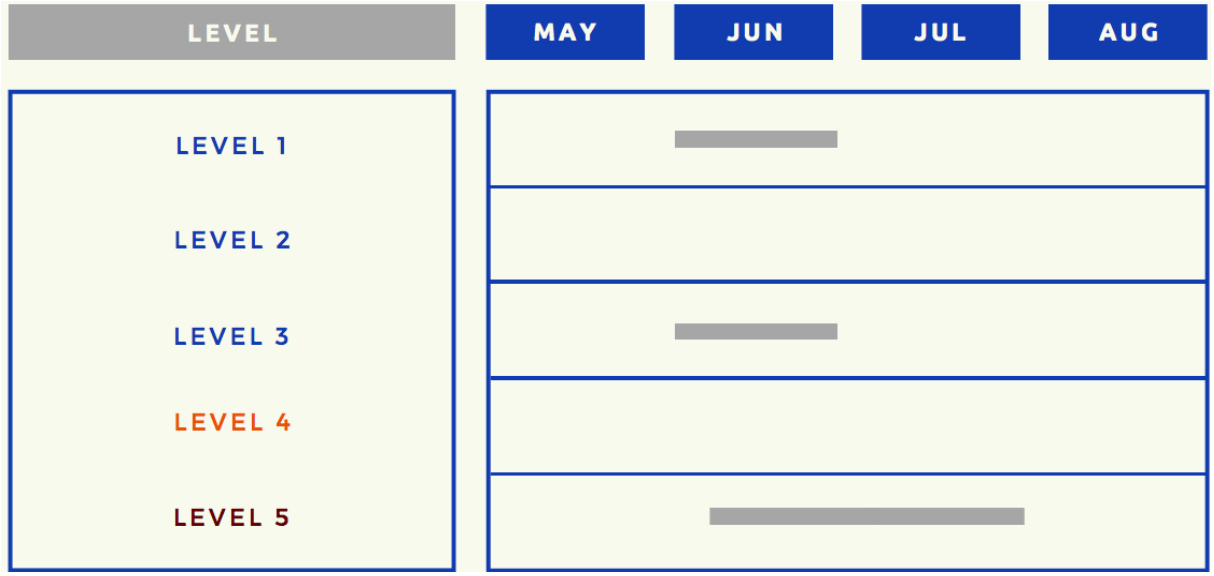
During the year 2021-2022, it will be a question of testing the EntreCompFood system within our existing training courses in our establishments, starting in September 2021 in Paris, and October 2021 in Ljubljana and in Andalusia. It has been estimated that about 120 students from Levels 1 – 4 at both academic institutions will participate in courses subjected to testing the EntreCompFood system; additionally, about 12 students from AgroParisTech and UL-BF will be involved in the course for Ecotrophelia contest. Andalucía Emprende provides courses for different types of learners (students, start-ups, industry, and educators); it has been estimated that about 100 students, 30 start-ups and 20 educators will attend their courses.

3.1. Planning of EntreCompFood training sessions according to training levels at AgroParisTech

In the case of AgroParisTech, the courses directly related to food have been identified (see Part 1.1). The modules were referenced for each course and only those conducted in the form of a group project were selected for testing the within the EntreCompFood project.







In the first year of the engineering cycle, the EntreCompFood system could be tested in a module on entrepreneurship or in micro innovation competitions (lasting one week in the AgroParisTech modules).

In addition, there is an optional module in our institution in which the training could be tested: the integrative module on the theme of "Management and projects in agri-food companies: from agricultural products to food products".

In the 2nd year of the engineering cycle, the system would be evaluated in a longer project like the integrative project, carried out at AgroParisTech. This project is built in 3 phases and lasts between 6 and 8 weeks:

- Design and development of a food,
- Innovation process in the food and cosmetics industry: from the development of the idea to the production of models,
- Valorisation of functional bio-sourced molecules for food, chemistry, cosmetics and materials.

During the 3rd year of the Design and Product Development (CDP) and Process and Production Engineering (GPP) engineering courses, in line with our aim to evaluate the student more and more closely during the course of his or her cycle, we plan to test him or her in the individual cross-disciplinary project carried out during this final year. There are also modules in our institution such as innovation engineering with the use of Vianeo, a promising tool in the Business Design approach.

At level 4, the FIPDes course presents several interesting projects to test the EntreCompFood course such as:

- The Transversal Innovation Project (I) module from September to January (31h-5 months) which aims to provide theoretical and practical support for R&D projects and the ideation of innovative concepts while teaching international students project management, group management and intercultural intelligence which enriches creativity.
- The Junior R&D Project from September to January (90h-5 months); This module deals with the different stages and issues of R&D projects.

Groups of 5 students are given a precise mission to answer a specific industrial question on product/process issues (e.g. reformulation issues, eco-design of products or processes, etc.). The students' work is divided between the literature review, the experimental part (if applicable), the technical and scientific report (oral and written).

- The senior project from September to November (60h-3 months). This module makes the students think about the new problems generated by the change of scale when going from a "kitchen prototype" to an industrial scale. It enables them to:
    - Plan, carry out and evaluate a scaling up process on concrete cases from the DIT food prototype showcase.
    - Put students in a project management situation by working on a practical case. Enable students to develop and improve their project management skills, particularly in the context of a research and innovation project and teamwork.)

Or other projects or events such as the Food Hackaton in Sweden.

In addition to the above timetable, Annex 1 contains a complete list of all the modules, in which the EntreCompfood training could potentially by applied in the future: the persons responsible and the dates during the school year are indicated. In between this list, the AgroParisTech team will select a limited number of modules during which the training will be implemented in the school year 2021/22.

3.2. Planning of EntreCompFood training sessions according to training levels at UL-BF

Revision of curricula at UL-BF study courses related to food and nutrition revealed room for improvements in the development of the entrepreneurship competences, therefore changes were implemented in UL-BF curricula to accommodate development of EntreComp competences. The identified courses are listed in Part 1.2.

The study year at UL-BF is divided in four blocks, the first two blocks represent the winter semester, and the last two the summer semester. The majority of courses are conducted within one block (7 weeks), with exemption of larger ones, stretching over two blocks.

Examples of course curricula with integrated EntreCompFood training are presented below, while the persons responsible and the dates of the course in UL-BF study calendar are comprised in Annex 2.

Examples of course curricula with integrated EntreComp framework at BSc study programme (level I – III)

COURSE TITLE: **Unit Operations in the Food Industry**

STUDY PROGRAM (YEAR): Food science and technology BSc (2nd year)

COURSE STRUCTURE: Lectures / Laboratory tutorials (6 ECTS)

SEMESTRE: 2nd (summer semester)

DESCRIPTION OF PEDAGOGIC ACTIVITY AND METHODS/TOOLS:

Unit Operations in the Food Industry requires a lot of mathematics, physics and chemistry and is considered among students as challenging subject. Often the physical principles underlying the basic concepts taught are too complicated, so students don't gain a deep understanding of anything - they lose enthusiasm, memorize equations and move on.

Teaching involves ex cathedra lectures using blackboard to explain engineering equations and solve problems. Excel or Calc are also used as a popular and effective computational tool for performing engineering calculations. By using Excel or Calc for calculation and data visualization students can perform alternative design and analysis and can better understand and interpret the solution. To better understand the course material, gain more practical experience and learn how to apply theory to practice, students have to complete project-based assignment. They are asked to divide themselves into groups of 4 and they have to submit the solution by a given deadline. Afterwards they are invited to give 5-minute presentation about their work followed by question-answer session.

Before laboratory tutorials students prepare themselves by watching introductory movies and reading instructions on Moodle (self-learning). In the laboratory students perform experiments which emphasize the place of food engineering in the real world in contrast to context-free experiments. To make experiments more relevant to everyday life, students are exploring laws of food engineering by analyzing food and food-related samples. Group work (groups of maximum 4 students) and use of computer tools are encouraged during lab exercises. At the end of each laboratory tutorial students are obliged to write and submit research report describing aim, methods and findings/results.

ASSESSMENT / SELF-ASSESSMENT TOOL(S) APPLIED:

At the end of the course students will be given a questionnaire to assess their reaction to revised Unit Operations in the Food Industry Program.

ENTRECOMP COMPETENCES DEVELOPED / ADVANCED BY THIS ACTIVITY

By introducing a project-based assignment in a traditionally taught engineering course and performing experiments with food or food-related samples will, students will be able to further develop their competences:

- Learning through experience
  Students learn valuable lesson from working on project-based assignments and relevant laboratory experiments and they believe this knowledge will be useful in the future.
- Creativity
  Typically, project-based assignments do not have a single correct answer and various processes and methods have to be used. Students are forced to connect ideas from different fields of knowledge and produce new ideas which enhances creativity.
- Motivation and perseverance
  Learning about food and performing experiments which emphasize the place of food engineering in the real world in contrast to context-free experiments will make students more motivated and enthusiastic to gain a deep understanding of food engineering.
- Working with others
  During lectures and laboratory tutorials collaboration is encouraged by dividing students into groups of 3-4. Group activity increases discussion, experimentation, enthusiasm and generation of new ideas. Teacher becomes a facilitator instead of a lecturer because he/she is guiding students through posing and answering questions.

COURSE TITLE: **Practical Training (Internship)**

STUDY PROGRAM (YEAR): Food Technology and Nutrition BSc

COURSE STRUCTURE: Other (3 ECTS)

SEMESTRE: 1st semester (winter semester)

DESCRIPTION OF PEDAGOGIC ACTIVITY AND METHODS/TOOLS:

Practical training is first real contact for students with existing workplaces in the field of Food Technology and Nutrition. Aim of practical training is to familiarize the students with laboratory work in the field of food analysis or food development or with the work in food industry. Practical training in the field of Nutrition aims to familiarize the students with skills for nutrition counseling, dietary planning and nutritional needs of patients in clinical environment. Practical training is based on project work, where students perform the whole process that is required from them e.i. organize and carry out analysis, actively perform task in processes of food industry etc.

Activity: work in the real work environment under the supervision of mentor: cooperate in the planning phase of work, independently carry out work tasks, cooperate with mentor in result evaluation and writing a report.

ASSESSMENT / SELF-ASSESSMENT TOOL(S) APPLIED: In the report students report and asses their work experience. Development of their competences is also assessed. Whole experience is analyzed by using SWOT analysis.

ENTRECOMP COMPETENCES DEVELOPED / ADVANCED BY THIS ACTIVITY: **creativity** (searching for the optimization of work, searching for new approaches in specific problem solving)**, working with others** (learning to communicate with others about specific problem and reporting about work, also learning to cooperate in bigger projects), **learning through experiences** (acquiring the know-how of preformed tasks and developing the understanding behind work process), **motivation and perseverance.**

COURSE TITLE: **Winemaking**

STUDY PROGRAM (YEAR): Food science and technology BSc (3rd year, elective subject)

COURSE STRUCTURE: Lectures / Seminars / Laboratory tutorials / Field work (6 ECTS)

SEMESTRE: 2nd semester (summer semester)

DESCRIPTION OF PEDAGOGIC ACTIVITY AND METHODS/TOOLS:

Slovenia as a wine-growing country has a long tradition, which represents not only winemaking, but also viticulture. We produce wine in three wine-growing countries and within them in nine wine-growing districts. Just under 15,500 ha are entered in the register of grape and wine processors. The wine production is between 800,000 and 900,000 hl per year. In each of the wine-growing districts, there is at least one larger cellar that buys grapes. Among the 48 cultivated grape varieties, white grape varieties predominate. Our vineyards are located on steep slopes, which on the one hand means expensive production, and on the other hand it allows for a quality grape harvest. The share of quality wine therefore represents as much as 70% of production. Given the declining consumption of wine in Slovenia, winemakers have to sell more wine on foreign markets.

Within 35 hours of lectures, students learn about the theoretical basis of wine production. They upgrade their knowledge from a basic subject that deals only with grape processing. With or on the variability of the year, weather conditions and the specifics of the field, they learn the basic differences that an oenologist must consider in his decisions. A wrong or too late decision always leads to a deterioration in quality, which is not according to the wishes of either the grower or the expectations of the consumer. Understanding and consolidation of knowledge is checked during lectures with various surveys, quizzes, questions.

A special feature of the course are seminars (15 hours) in the framework of theoretical lectures, where students choose a narrower topic, which they present to classmates who come from different study programs and consequently different prior knowledge. The latter comment, ask questions, look for solutions, evaluate themselves, and the lecturer in the discussion merely directs them in the right direction of thinking and connecting.

In laboratory tutorials, students in pairs perform physico-chemical analyzes, cleaning and stabilization experiments, and sensory analysis of samples. They are pre-prepared for the exercises as they write quick 5-minute tests that are graded until the next exercise and represent the final grade of the colloquium. At the end of each individual exercise, students also write a report - calculations, results and especially a comment on the results with a discussion.

The connection between theory and practice is finally represented by the most desired and expected field works (visit to the wine cellar), where students are also involved in the production process, and the conclusion is the tasting of a large number of samples.

ASSESSMENT / SELF-ASSESSMENT TOOL(S) APPLIED:

At the end of the course students will be given a questionnaire to assess their reaction to revised Winemaking Program.

ENTRECOMP COMPETENCES DEVELOPED / ADVANCED BY THIS ACTIVITY

- Learning through experience
  In theoretical and practical work, students learn about the basic agronomic differences in grape varieties and in Slovenian wine-growing districts (visually, by composition, technological and sensory).

- Creativity
  In seminars, the creativity of both individual students and the whole group is absolutely demonstrated when we comprehensively discuss certain presented content from different angles: when, what, why, ...? The greatest contribution to this is made by the interest of students in various study programs, topicality, problems and possible solutions from idea to realization.

- Motivation and perseverance
  Theoretical knowledge is verified by appropriate experimental work, and above all, objective sensory analysis as confirmation of the desired "result". It is necessary to learn about the defects, faults and diseases of wine, as well as how to get and know high-quality wines with a pronounced variety, multi-layered aroma and harmony.

  Maintaining contacts with students and the basics of wine sensory analysis we continue with regular annual organized meetings (Basic 45-hour training program for wine, must and other grape and wine products; Additional training of wine tasters (this year 3 master students participated in sample preparation), otherwise lectures at sommelier courses in collaboration with employees of the Department of Food Science and Technology.

- Working with others
  During lectures, seminars (or projects) and laboratory tutorials collaboration is encouraged by dividing students into smaller groups of 2-5. The independent work of students in groups of different fields of study at Biotechnical Faculty encourages discussion, collaboration, and the generation of new — amazing ideas that turn out to be even realistic in practice.

COURSE TITLE: **Food biotechnology**

STUDY PROGRAM (YEAR): Biotechnology BSc (elective subject)

COURSE STRUCTURE: Lectures / Seminars / Laboratory tutorials / Field work (3 ECTS)

SEMESTRE: 2nd semester (summer semester)

DESCRIPTION OF PEDAGOGIC ACTIVITY AND METHODS/TOOLS:

Laboratory tutorials will be performed as a project work (Isolation of pigment from natural source and its integration in food product). Students will be divided in three groups of 5.

Each group – literature reading, collecting ideas how to carry out a project, presentation of the project plan to other groups (Jamboard), discussion between groups, preparing a timetable for the project performance (**creativity, working with others**).

Each group – performing calculations for preparation of all reagents and solutions, experiment set up, different assays for the pigment characterization, preparation of food product including the pigment (**working with others, learning through experiences, motivation and perseverance** to isolate the pigment and prepare an interesting food product).

Each group – presenting results to other groups (Jamboard, Cisco webex), discussion between groups (**creativity, working with others, learning through experiences).**

ASSESSMENT / SELF-ASSESSMENT TOOL(S) APPLIED: quizzes (Exam.net).

ENTRECOMP COMPETENCES DEVELOPED / ADVANCED BY THIS ACTIVITY: **creativity, working with others, learning through experiences, motivation and perseverance.**

Examples of course curricula with integrated EntreComp framework at MSc study programmes Food Science, and Nutrition (level IV)

COURSE TITLE: **Food Safety**

STUDY PROGRAM (YEAR): Food science and technology MSc (1nd year)

COURSE STRUCTURE: Lectures 55 h / Seminars 20 h / Seminar tutorials 10 h / Laboratory tutorials 20 h/ Field work 10 h (6 ECTS)

SEMESTRE: 1st semester (winter semester)

DESCRIPTION OF PEDAGOGIC ACTIVITY AND METHODS/TOOLS:

Laboratory tutorials - students will be divided in groups of 3. The work for Seminar tutorials will be connected to the work of Laboratory tutorials. Seminar tutorials as a work project - students will be divided in groups of 6; online/live panels; Miro and Trello will be used for idea visualization and development; project evaluation and presentation in front of other students

ASSESSMENT / SELF-ASSESSMENT TOOL(S) APPLIED: For this purpose, quizzes will be used.

ENTRECOMP COMPETENCES DEVELOPED / ADVANCED BY THIS ACTIVITY

First, we will focus on RESOURCES - motivation and perseverance: this will be achieved by combining seminar exercises with laboratory exercises. Seminar exercises will familiarize the students with the topic and thus they will get more motivated for the lab work. We will use Miro and Trello to present the topic: Antimicrobial Resistance, Biofilm and methods used in practical work.

Second, we will focus on INTO ACTION- Working with others: This will be achieved by (i) working in pairs in practical lab work and (ii) working in groups of 4 in individual work where students will have to collect and analyse the lab results obtained. We will use Miro and Trello to present the lab results.

The third part will focus on OPPORTUNITIES -sustainable thinking: this will be achieved by evaluating the results of the (i) lab work and (ii) scientific literature. The group of students will have to present the results and novelty of the research literature on the specific topics. We will use Miro and Trello and presentation programs to present the results.

COURSE TITLE: **Nutrition engineering**

STUDY PROGRAM (YEAR): Food Science and Nutrition, MSc (elective, 1st and 2nd year) (6 ECTS)

SEMESTRE: 2nd semester (summer semester)

COURSE STRUCTURE: Laboratory tutorials

DESCRIPTION OF PEDAGOGIC ACTIVITY AND METHODS/TOOLS: Nutrition engineering is an elective subject at MSc study program and is based on food production and quality control, new products development, use of fat substitutes, additives, meat analogue properties, etc. Laboratory tutorials include a variety of topics, for example preparation and evaluation of various ready meals, rheological properties of emulsions, preparation of meat analogue, evaluation of sponge cake with increased protein content. The implementation of tutorials is based on independent and creative work.

Activity: development of a new product – sponge cake with increased protein content: Students will be divided into small groups (3 or 4). The task of each group is to prepare an appropriate recipe and implementation plan.

ASSESSMENT/SELF-ASSESSMENT TOOL(S) APPLIED: After sponge cake preparation each group of students will share their recipe, production procedure, photos and calculated nutritional value on google Jamboard. In this way, students will get all information about prepared products. This will make it easier to discuss the results.

ENTRECOMP COMPETENCES DEVELOPED / ADVANCED BY THIS ACTIVITY: Developed competences at this tutorial: **working with others** (small groups of students), **creativity** (developing recipes for sponge cake with increased protein content), **mobilizing resources** (google Jamboard for sharing recipes, procedures…).

3.3. Planning of EntreCompFood training sessions according to training levels at Andalucía Emprende

Training is a key aspect for the development and consolidation of a business project. The training given by the AE is non-regulated training, adapted to the knowledge and particular needs of each business

project, developed through training sessions that will help exploit the entrepreneurial potential and make grow the business. AE training sessions will be both, Basic business training, for those entrepreneurs who do not have previous knowledge about the management of a company; and Personalized business training, for entrepreneurs who start with previous business knowledge, but wish to expand it. Further, specialized courses will be aimed at young students (i.e. primary and secondary school) and for unemployed people. Through AE service, theoretical-practical training is offered to students of all levels of the educational system, so that they acquire from their first years, knowledge related to business management, through an innovative and eminently practical methodology for the development of skills in unemployed people. The content of AE courses is organized according to EntreComp framework (EntreComp levels). A full list of anticipated courses is provided in Annex 3.

4. The tools made available to our EntreCompFood learners

Tools and methods for entrepreneurs such as entrepreneurial platforms or networks can have a profound impact on the development of individual entrepreneurial will and motivation. This type of support plays an important role in individuals' abilities to identify business opportunities, validate business ideas and access resources such as customers, business partners, suppliers and advisors.

It is therefore important to provide tools to empower them to strengthen their projects and networks.

Besides a simple tools like Google Jamboard, there are certain other relevant tools that will help entrepreneurs to structure the project and disseminate, like Vianeo and Linkedin. Below additional details on these tools are given as a complement to deliverable 3.1 previously produced in the EntreCompFood project.

Vianeo is a Business Design method, it is a systemic strategic marketing approach composed of 5 steps that validate the project's value evidence:

- Value 1 - Legitimacy: What is the DNA and the anchoring of the project in reality?
- Value 2 - Desirability: Who are the people expressing needs that are not satisfied by the current solutions?
- Value 3 - Acceptability: How is the existing ecosystem organised? Which customers, which potential partners? Which competitors?
- Value 4 - Feasibility: What innovative offer to solve users' problems? With which partners?
- Value 5 - Viability: Who are the customers? What are the products/services? What is the value proposition?

In any process of innovation and exploration, a project leader has the choice of an increasing number of methods and tools to guide his or her investigations. But a common thread was missing to find his way. Like a meta-method, Vianeo synthesizes the different approaches: Design Thinking, Lean Startup, Business Model Canvas, Blue Ocean, and gives each its most relevant place.

Vianeo also uses patented methods such as:

- The effectuation theory, theorized by Professor Saras Sarasvathy describes the decision process specific to the entrepreneurial posture in the context of launching a project in an uncertain context.
- The ISMA360® method, developed by Dominique Vian, Professor at Skema Business School in Sophia Antipolis, is the first systemic method in the world of innovation marketing. Vianeo is the only company to offer digital and training tools integrating this method.

During the EntreCompFood project, a group was created on the Linkedin platform to bring together French food, innovation and ecodesign networks on a common page. The topics discussed are only related to entrepreneurship: seminar, webinar, call for tender, calendar...

This type of Linkedin can help to develop a network and interact with contacts to keep your professional network alive. It can also help to get information. For the learners it can help to push them to write a personal and professional Linkedin and thus establish their credibility and notoriety but also control their professional digital identity.

5. Evaluation grid

The evaluation grid below was constructed by Ania and AgroParisTech in the framework of the EntreCompFood project. This evaluation grid is based on the 2016 "The Entrepreneurship Competence Framework" - table in annex "The full EntreComp framework". It will be used to assess the entrepreneurial teams and learners.

The competency assessment grid, shown in table 1, based on the EntreComp framework, presents the 3 domains of EntreComp, i.e. Ideas and Opportunities, Resources and finally the In Action domain. Each domain includes 2 or 3 competences to be developed in EntreCompFood. Each skill is assessed in 3 activities to which a level is assigned: beginner (I), intermediate (II), advanced (III) and expert (IV). These levels are described to enable the assessor to better understand the context of the level.

Table 1: The competency assessment grid based on the EntreComp framework

	TEAM NAME	XXXX	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4			
	University	XXXX	1pts	2pts	3pts	4pts			
	Description of the prc	2000 caracters	Beginner	Intermediate	Advanced	Expert			
	COMPETENCES		With reduced support from others, some autonomy and with my peers.	Take responsibility for making decisions and working with others.	Take and share some responsibility.	Make a substantial contribution to the development of a specific field.	SUB-TOTAL	TOTAL	COMMENTS
Ideas & Opportunities	Creativity	The team develops several ideas and opportunities to create value,							
		The team explores and experiments with innovative approaches							
		The team combines knowledge and resources to achieve valuable							
	Vision	The team imagines the future							
		The team is able to develop a vision to turn ideas into action							
		The team visualises future scenari-os to help guide effort and action							
	Ethical & Sustainable thinking	The team assess the consequences of ideas that bring value and the							
		The team reflects on how sustainable long-term social, cultural and							
		The team acts responsibly							
Resources	Motivation and perseverance	The team is determined to turn ideas into action and satisfy their need							
		The team is prepared to be patient and keep trying to achieve their							
		The team is resilient under pressure, adversity, and temporary failure							
	Mobilising resources	The team gets and manages the material, non-material and digital							
		The team makes the most of limited resources							
		The team gets and manages the competences needed at any stage,							
In action	Working with others	The team members work together and co-operate with others to							
		The team is able to network							
		The team is able to solve conflicts and face up to competition							
	Learning through experience	The team uses any initiative for value creation as a learning							
		The team learns with others, including peers and mentors							
		The team reflects and learns from both success and failure							
	TOTAL						0		
							Max	84	100

6. Conclusion

Deliverable 4.1 aims to describe the implementation of the EntreCompFood training in our institutions. This deliverable is produced by AgroParisTech, AE and UL-BF and will be adapted by the partner institutions at the local level.

The analysis puts into perspective the numerous training courses in which we could implement the EntreCompFood system. The description of the levels and profiles of the learners targeted by the EntreCompFood project curricula and adapted courses content allows us to individualise the training according to the learner.

This deliverable is complemented by an introductory presentation on entrepreneurial skills and will serve as a basis for the creation of appropriate learning content for the EntreCompFood device.

Annex

Annex 1: AgroParisTech persons responsible and the dates in school year 2021/22 of all the modulus in which the EntreCompFood training could potentially be tested

	Levels / Course	Module	Training Manager	Date
Level 1	1A	Integrative module: Management and project in agri-food companies: from agricultural manager to food manager (optional module)	Gwenola YANNOU LE BRIS Catherine LECOMTE	June 2022– 3 weeks
	1A	UC Opening Entrepreneurship (optional) - Vianeo	Catherine LECOMTE	March 2022 (S12 de 2022)
Level 2	2A	LUTECE week - ATHENS programme - Introduction to entrepreneurship in life sciences	Catherine LECOMTE	November – 1 week
	2A Domaine 2 parcours ingénierie des aliments	UC project: -Design and development of a food -Innovation approach in the food and cosmetics industry: from the development of the idea to the production of models -Valorisation of functional biosourced molecules for food, chemistry, cosmetics and materials	Gwenola YANNOU LE BRIS Marie-Noelle MAILLARD	6-8 weeks
	2A	Case study - Case study, TD on LCA (EU sustainability of agro-industrial chains)	Gwenola YANNOU LE BRIS Et Benoit GABRIELLE	

Level 3	3A - CDP	Innovation engineering Vianeo tools	Gwenola YANNOU LE BRIS Véronique BOSC, Julien DELARUE Anne SAINT-EVE (SPAB)	
	3A - GPP	Project	Giana ALMEIDA PERRE (SPAB), Stéphanie PASSOT (SPAB)	
Level 4	FipDes	Module Transversal Innovation Project (I): Intercultural Intelligence, Project Management and Creativity	Barbara REGA Marwen MOUSSA	Sept-Jan (31h)
		Junior R&D Project		Sept-Jan (90h)
		Senior project		Sept-Nov (60h)
		Statistics Applied to Food Science and Technology (construction de la base de donnée)		Sept - Jan
		Food Hackaton (Suède)		1 week
	Masternova	Proj'innov	Maryvonne ASSALLE DE SALINS (changement en cours)	
		- Serious game (NEOMA) - Online MarketPlace business simulation game.		
		UE Marketing projet		
		Module innovation et resultats de la recherche		

Level 1, 2, 3, 4, 5	Contest	Creativity Jury (1A, 2A, 3A, all students)	Catherine LECOMTE	Jan 2022
		Entreprendre Prize (1/2 J – 2 sessions)		Dec / Jan 2022 June 2022
		Maturation Prize (1/2 J – 2 sessions)		Dec /Jan 2022 June 2022
		Ecotrophélia	Paul MENUT	June 2022
Level 5	Food'in Lab	Selection Committee	Salomé FALISE	July 2022

Annex 2: UL-BF persons responsible and the dates in school year 2021/22 for test of the EntreCompFood training

Level	Type	Course	Training Manager	Date
Level 1	compulsory	Introductionary Economics	Aleš KUHAR	March/April 2022
Level 2	compulsory	Unit Operations in the Food Industry	Iztok PRISLAN	March/April 2022
	elective	Food Biotechnology	Polona JAMNIK	May 2022
Level 3	compulsory	Practical Training – internship		October 2021/February 2022
	elective	Winemaking	Tatjana KOŠMERL	April/May 2022
Level 4	compulsory	Food Safety	Anja KLANČNIK	October/November 2021
	compulsory	Sensory analysis	Mojca KOROŠEC	December 2021/January 2022
	elective	Nutrition engineering	Mateja LUŠNIC POLAK	April/May 2022
Level 1, 2, 3, 4	Contest	Ecotrophélia	Aleš KUHAR	June 2022

Annex 3: Andalucía Emprende persons responsible and the dates in school year 2021/22 for test of the EntreCompFood training

Entre Comp Level	Type	Course	Training Manager	Date
Level 5-6	International benchmark event in the sector and face-to-face and virtual meeting point where you can find partners, increase financing and internationalization channels, as well as publicize new products, services and innovative projects.	Working day SMART AGRIFOOD	CADE Málaga	30 September-1 October
Level 3-4	Aimed at launching a reflective process that guides educational practice to address in a planned way the treatment of entrepreneurial skills in students	I Andalusian Congress on Educational Entrepreneurship: an international perspective	CADE Sevilla	7-10 October
Level 1-6	Online workshop to analyse and discuss the training needs and skills in entrepreneurship of the food and beverage industry	ECF national workshop	FIAB/AE	14 October
Level 1-2	Entrepreneurship Camps, initiative to promote entrepreneurship in young people aged 18 to 30, through sports activities and other activities to work on entrepreneurial skills with Lean Startup methodologies and learn by doing	Entrepreneurship Camp	CADE Torremolinos (Málaga)	15-17 October
Level 5-6	Star day of innovation in the agri-food sector in which ideas are identified, projects are shown, results are shared under a participatory and collaborative environment in order to advance and face a future full of challenges in which innovation is key to reach success.	Alibetopías	FIAB/AE	26 October

Level 1-2	Entrepreneurship Camps, initiative to promote entrepreneurship in young people aged 18 to 30, through sports activities and other activities to work on entrepreneurial skills with Lean Start-up methodologies and learn by doing	Entrepreneurship Camp	CADE Cazorla (Jaén)	19-21 November
Level 1-4	Annual Forum to promote the identification of innovative entrepreneurship opportunities and the diversification of economic activities in rural areas, giving value to entrepreneurs in rural and unpopulated areas	1st SMARTDAY DEMOGRAPHIC CHALLENGE. Start TV	SSCC Sevilla	22 November
Level 1-4	Live digital contest between educational centres; program that uses gamification to bring the main concepts of the world of entrepreneurship to the public in a knock-out contest format.	Great Quiz	SSCC Sevilla	3 December
Level 1-2	Entrepreneurship trends forum. The study carried out by AE on Trends and Opportunities for Entrepreneurship will be presented.	2nd SMARTDAY TRENDS. StarTV	SSCC Sevilla	14 December
Level 1, 2, 3	Entrepreneurship kit. It is made up of workshops designed to stimulate the students the acquisition and development of entrepreneurial skills, especially competence of sense of initiative and entrepreneurial spirit. They have been programmed to respond to the different educational stages, following a training itinerary based on the methodology of learning-by-doing and attending to the three phases of entrepreneurship: Explore-Develop-Present. a. **Entrepreneurship Animation Kit**: aimed at 5th and 6th Primary students cast. The objective is to motivate and awaken the entrepreneurial spirit from the early ages.	INICIA Session forecast and number of students: - Workshops 100: 1.000 - Visits to companies 14: 150	AE	October 21-June 22

	b. **Entrepreneurship Preparation Kit**: for Baccalaureate and FP students Basic. The objective is to continue promoting the development of skills entrepreneurs while introducing theoretical and practical knowledge related to business management. c. **Entrepreneurship Activation Kit**: for young training students Professional of Middle and Superior Degree of any branch. Has as main objective to consolidate and deepen the skills acquired in the previous stages, and in business knowledge			

EntreComp Food

Entrepreneurship Competence Agrifood industry

Project title:

Applying EntreComp to attract young people to the 1st European manufacturing sector: the agri-food industry

About us:

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Univerza v Ljubljani Biotehniška fakulteta

FIAB – Spanish Food and Drink Industry Federation

Junta de Andalucía – Consejería de Empleo, Formación y Trabajo Autónomo – Andalucía Emprende, Fundación Pública Andaluza

ania – Association Nationale des Industries Alimentaires

AgroParisTech – Talents for a sustainable planet

Project founder:

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