



URBAN Green Education for ENTteRprising Agricultural INnovation

# MODEL AND RECOMMENDATIONS FOR A CURRICULUM IN URBAN AGRICULTURE ENTERPRENEURSHIP (IO3)



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**URBAN GREEN TRAIN**

URBAN GRGreen Education for ENTTeRprising Agricultural INnovation

(Project n. 2014-1-IT02-KA200-003689)

<http://www.urbangreentrain.eu>

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# INTRODUCTION

The project “**Urban Green Education for Enterprising Agricultural Innovation**” (URBAN GREEN TRAIN - 2014-1-IT02-KA200-003689) aims to encourage pioneering business oriented initiatives on urban agriculture (UA), based on knowledge exchange, mutual cooperation and innovation among Small and Medium Enterprises (SMEs), policy makers and Higher Education Institutions (HEIs) as to meet the global demand for urban green innovation (environmental technologies, eco-friendly products and services, sustainable design and healthy food, etc.). The project’s general objective is thus to strengthen the knowledge triangle between Education, Research and Business in the field of Urban Agriculture and more specifically:

- To raise awareness of potential employers and entrepreneurs for enabling the environment for green economy;
- To innovate curricula and learning methods in Higher Education, expanding existing forms of University-Society-Business cooperation and crossing sectoral, disciplinary and national boundaries;
- To build capacity of youth to create their own business;
- To respond to the EU labour market need of highly qualified and entrepreneurial graduates in this field;
- To increase awareness on the role of new green enterprises in creating more sustainable cities from the side of local governments, consumers and other actors.

URBAN GREEN TRAIN project has been founded with the support of the Erasmus+ Programme of the European Union.

Project partners in the URBAN GREEN TRAIN project are:

- The **Department of Agricultural Sciences (DipSA)** of the *Alma Mater Studiorum* University of Bologna (IT), as coordinator. DipSA provides state wide leadership in research, teaching and extension in horticulture, crop production, sustainable agricultural systems and environment and applied plant ecology. DipSA has a world leading experience in the area of urban farming in Europe and in developing countries. [www.scienzeagrarie.unibo.it](http://www.scienzeagrarie.unibo.it).
- Founded in 2006, **Horticity (IT)** aims at putting together different and qualified expertises in order to provide products and services for preservation and valorisation of the horticultural production, adopting a multidisciplinary approach and orienting efforts to the improvement of food security. [www.horticity.it](http://www.horticity.it).
- **Mammut Film (IT)** is a production company that has been working in the film making business for more than ten years. It produces documentaries, videos and organizes events and dissemination campaigns. [www.mammutfilm.it](http://www.mammutfilm.it).
- **STePS (IT)** pioneers approaches to formal and non-formal learning to enable personal growth as well as inclusive and sustainable change in organisations and territories. [www.stepsurope.it](http://www.stepsurope.it).
- **Agreenium (FRA)**, a consortium of research and higher education French bodies in agribiosciences. Its purpose is to facilitate the access to facilities and resources in France, and to promote the role of agronomic and veterinary research & education to meet the challenges of food security and sustainable development. <https://agreenium.fr>.
- Located in the Pays de la Loire, **Vegepolys (FRA)** has been recognised in France as the international plant cluster. The cluster brings together companies involved directly and indirectly in plant growing with trade associations, unions, and development bodies as well as local chambers of trade and commerce. [www.vegepolys.eu](http://www.vegepolys.eu).

- **The RUAF Foundation (NL)** is an international network and leading centre of expertise in the field of (intra- and peri-) urban agriculture and City Region Food Systems. RUAF seeks to contribute to the development of sustainable cities by facilitating awareness raising, knowledge generation and dissemination, capacity development, policy design and action planning for resilient and equitable urban food systems. [www.ruaf.org](http://www.ruaf.org).
- **South-Westphalia University of Applied Sciences (Fachhochschule Südwestfalen, SWUAS) (DE)** educates – besides other subjects – agricultural students in the Department of Agriculture situated in Soest. Since few years, SWUAS is also doing research in business models of urban agriculture via several national and international project and network initiatives. Additionally, they run an R&D aquaponic system for research, but also for teaching purposes. <http://www4.fh-swf.de>.
- **hei-tro GmbH (DE)** is a German enterprise founded 1984 in Dortmund and for decades working on commercial real-estate projects development. Since 2013, the company is focused on producing and improving new aquaponic systems and products. The company also offers services in project management and monitoring of aquaponic-systems. Another future aim of their business is to develop commercial prototype-systems for science needs and researches. [www.hei-tro.com/](http://www.hei-tro.com/)
- **Grow The Planet** – a company seeded in **H- Farm S.p.A.** - is a social network dedicated to anyone who loves good healthy food, anyone who has a vegetable garden or simply wants to learn, in a simply fun way, how to grow some of his own food. [www.growtheplanet.com](http://www.growtheplanet.com).

More information and contact details of the URBAN GREEN TRAIN partners are available on the project website: <http://www.urbangreentrain.eu>.

The present output “MODEL AND RECOMMENDATIONS FOR A CURRICULUM IN URBAN AGRICULTURE ENTREPRENEURSHIP (IO3)” illustrates the international curriculum<sup>1</sup> on urban agriculture entrepreneurship developed, tested and revised in 2015/2016 by URBAN GREEN TRAIN project partners and presented here as prototype for collaborative creation of further courses/curricula in UA.

This publication addresses non partner-HEIs, other training providers and public / private stakeholders to present the main training actions and elements that define the URBAN GREEN TRAIN curriculum, e.g. the course structure, methodology, teaching and assessment methods, learning objectives, content and resources.

In order to assure transparency and comparability, as well as to foster lifelong learning and increase the employability, mobility and social integration of workers and learners, a specific chapter is dedicated to the portability of qualifications (ECTS) and the description of the course in terms of competences acquisition.

The publication also describes the actions taken by the Consortium with the purpose to extend the impact of the model of curriculum, e.g. the creation and launch of URBAN AG: the EU Cluster on Urban Agriculture involving different actors in UA from all over Europe: HEIs, research centres, SMEs, NGOs, policy makers, etc..

In the end, a set of recommendations highlights the necessary support for planning further cross-sectoral UA education activities based on the cooperation among University-Society-Business at national and European levels.

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<sup>1</sup> With reference to the CEDEFOP Glossary “Quality in Education and Training” (2011) the term “Curriculum” is used in this context to mean “inventory of activities implemented to design, organise and plan an education or training action, including definition of learning objectives, content, methods (including assessment) and resource, as well as arrangements for training teachers and trainers”

# URBAN GREEN TRAIN CURRICULUM

## *Aims*

The URBAN GREEN TRAIN curriculum has been designed as an international, cross-sectoral, multi-targeted training path, having the objective to equip professionals, students and academics with the competences needed for the creation of new business oriented initiatives in Urban Agriculture.

The final aim of the Urban Green Train curriculum is thus to respond to the global demand for urban green innovation (environmental technologies, eco-friendly products and services, sustainable design and healthy food) by equipping present and future entrepreneurs with the set of useful skills and competences needed to start pioneering business oriented initiatives in UA. Innovative, sustainable UA entrepreneurship initiatives are needed within the EU to deal with the 21st century challenge of food concern, nutrition security, human prosperity and employment, climate change, environmental and energy issues as well as natural resource scarcity. Urban farms, green enterprises and many other initiatives covering the so called “farm to fork” linkages connecting rural and urban areas, as well as all non-food agricultural production and activities are growing all over EU, and so is the demand for highly qualified and entrepreneurial graduates, able to make them really innovative and sustainable.

URBAN GREEN TRAIN curriculum’s general objective is therefore to strengthen the knowledge triangle between education, research and business in the field of UA, as to train the “high skilled human capital”, with the right mix of expertise and competences that are required by the knowledge society for a sustainable growth.

The URBAN GREEN TRAIN curriculum specific objectives are thus i) to enable the urban environment for green economy, ii) to build capacity of youth to create their own businesses; iii) to answer the needs of employers, and iv) to bring about an awareness campaign ensuring long term project sustainability.



*The URBAN GREEN TRAIN curriculum aims at equipping professionals, students and academics with the competences needed for the creation of new business oriented initiatives in Urban Agriculture.*

## *Course structure*

The course structure and content have been defined on the basis of an accurate analysis of the training needs of relevant key actors in urban agriculture, carried out by project partners in their respective countries and illustrated in the Methodology Guidelines titled “URBAN AGRICULTURE INITIATIVES TOWARD A MINDSET CHANGE”<sup>2</sup>. This publication describes the results of the preliminary project phase, focused on a survey undertaken by partners with the aim of identifying new entrepreneurial models, training opportunities and challenges, as well as of updating the state of art of both UA entrepreneurship and entrepreneurship education.<sup>3</sup> Results from these activities have been analysed, compared and matched as to link the different types of UA business models and opportunities with the related needs for training and knowledge support and to pave the way for the creation of the course structure and content.

Therefore the URBAN GREEN TRAIN course structure has been designed taking into account the main results and conclusions from the preliminary phase, as highlighted in the Conclusions of IO1, as follows:

- The wide diversity of business initiatives with potentials to generate employment and green economy;
- The importance to attune the training offer to different business realities, not only in terms of underlying economic business models, but also in terms of starting point, types of actors and relevant networks concerned;
- The need to build a flexible training offer, both in form and content, in order to adequately address specific training needs, in consideration of the existence/absence of resources and skills that entrepreneurs may draw upon;
- The scarcity of educational resources available for specific themes - such as “Resilience, social inclusion and sustainability” and “Societal needs, market analysis and value chain development” – as well as for specific learning forms such as distance learning;
- The lack of blended forms of lectures with both practical learning and distance learning for topics related to UA entrepreneurship;
- The interest in practice oriented forms of education showed by training needs analysis results, such as lifelong learning and blended forms of non-formal and formal education;
- The need for integrated and multi-/interdisciplinary training support for new urban agriculture initiatives toward a mindset change.

The main URBAN GREEN TRAIN course areas and the overall course structure, as they were initially identified by partners in the project preparation, have thus been re-defined and re-designed according to the results of the preliminary phase, and in particular of the Training Needs Analysis. This analysis was conducted in 2015 by interviewing 122 representatives of the main UA target groups (SMEs, HEIs, NGOs and public authorities) in the four partner countries (France, Germany, Italy and the Netherlands). According to the interviewed persons, the most relevant education topics to be taught for encouraging successful UA enterprises are Communication (70%), Creativity (64%)

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<sup>2</sup> “URBAN AGRICULTURE INITIATIVES TOWARD A MINDSET CHANGE” is the URBAN GREEN TRAIN intellectual output n.1 and is available on the project web site at

[http://www.urbangreentrain.eu/upimg/pdf/IO1\\_New\\_UA\\_initiatives\\_toward\\_mindset\\_change\\_UGT\\_pg.pdf](http://www.urbangreentrain.eu/upimg/pdf/IO1_New_UA_initiatives_toward_mindset_change_UGT_pg.pdf)

<sup>3</sup> Based on the results of the state of art updates two online inventories have been developed and made available on the project web site:

- Inventory of business opportunities arising from urban agriculture (also including non-food production/activities providing ecosystem/social services), or available in urban food systems: [http://www.urbangreentrain.eu/en/?id=UA\\_Enterprises](http://www.urbangreentrain.eu/en/?id=UA_Enterprises)
- Inventory of existing training opportunities is developed and online at [http://www.urbangreentrain.eu/en/?id=UA\\_Educational\\_offer](http://www.urbangreentrain.eu/en/?id=UA_Educational_offer).

and Capacity for teamwork (58%), while the most emphasised specific skills are in Plant Production (70%) and “Communication, Networking, Public Relations” (68%). For what concerns the specific training needs mentioned by the interviewed persons, they are:

- Ecology & Resource management (61%)
- Cultivation techniques (57%)
- Laws & Regulations (52%)
- Local and regional policy (52%)
- Urban green space development (47%)
- Urbanisation & urban society (47%)
- Plant nutrition, manure management (44%)
- Public Relations & Advertisement (43%)
- Urban demands (43%)
- Urban planning and policy (41%)

The proposed final URBAN GREEN TRAIN course structure is composed by five modules, each of them covering one or more topics and skills mentioned above.

### ***Final URBAN GREEN TRAIN COURSE STRUCTURE***



*Module 1: Introduction into UA concept and types*

*Module 2: Resource use from a challenge perspective*

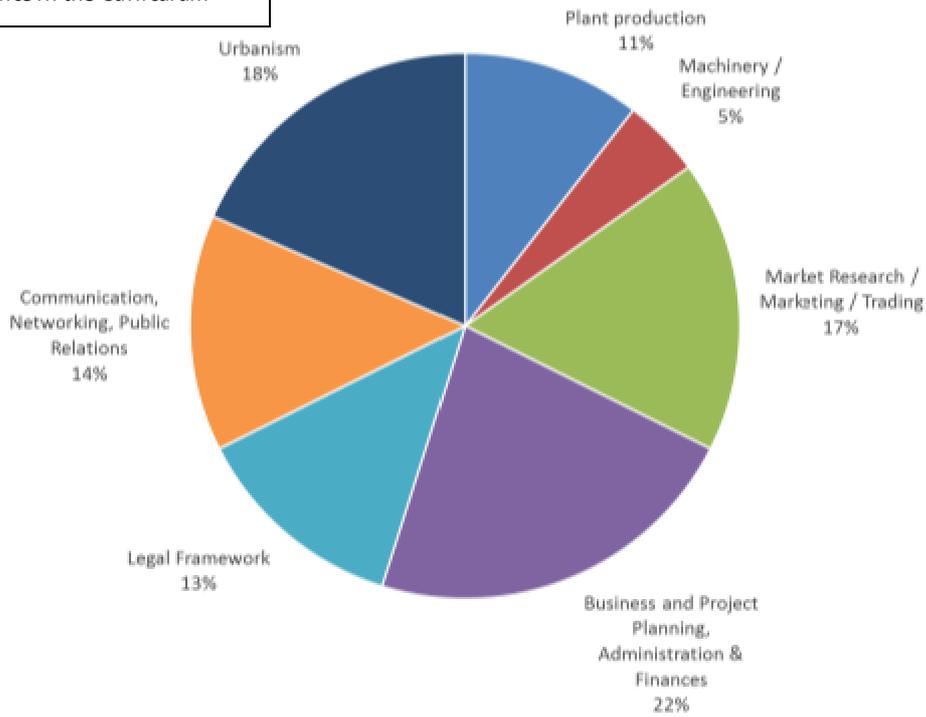
*Module 3: UA types/production systems & short food chains*

*Module 4: Networking and Governance*

*Module 5: The world of business and urban demands*

The following graph (Fig. 1) shows the relevance of each topic expected in the training needs analysis (TNA) and achieved in the URBAN GREEN TRAIN curriculum.

Relevance in the Curriculum



Relevance in the TNA

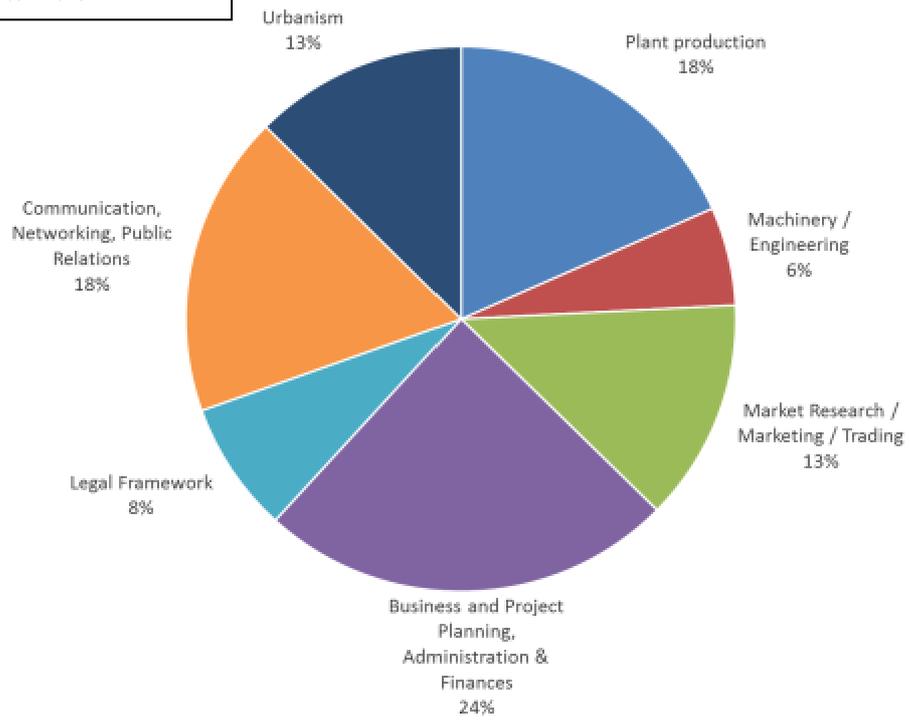


Fig. 1. Relevance of each topic in the whole curriculum. Expected from the training needs analysis (TNA) and achieved in the URBAN GREEN TRAIN curriculum.

## Methodology

According to results emerged from the preliminary work highlighting the lack of blended forms of lectures combining practical learning and distance learning, mixing non-formal and formal education and integrating multi/-interdisciplinary training offers, the URBAN GREEN TRAIN course has developed two main learning environments, as follows:

- Blended, combining online activities and face to face lessons,
- Online, for at distance and self-organised learning on a Moodle platform.

Blended and online courses overlap for content and activities related to Modules 1, 2, 3 and 4, while they differ for those related to Module 5 on “The world of business and urban demands”, which is offered both online and at presence, in a two weeks lasting face to face course (Fig. 3).

Modules 1, 2, 3 and 4 provide the required knowledge and skills for the development of innovative entrepreneurship initiatives in Urban Agriculture, as they illustrate different aspects of it: main concepts, types, systems, as well as relationship with urban ecology challenges, policy schemes and regulations, main stakeholders, etc... They are complemented by Module 5, which is specifically focused on entrepreneurship education and explains organisational, financial and administrative issues related to the planning, the start-up phase and sustainability of new UA enterprises.

By offering the choice between the online and the blended course, URBAN GREEN TRAIN project aims to target a multiple audience, composed by people with different needs and time constraints, e.g. researchers, students, entrepreneurs and potential entrepreneurs, workers, unemployed and public authorities

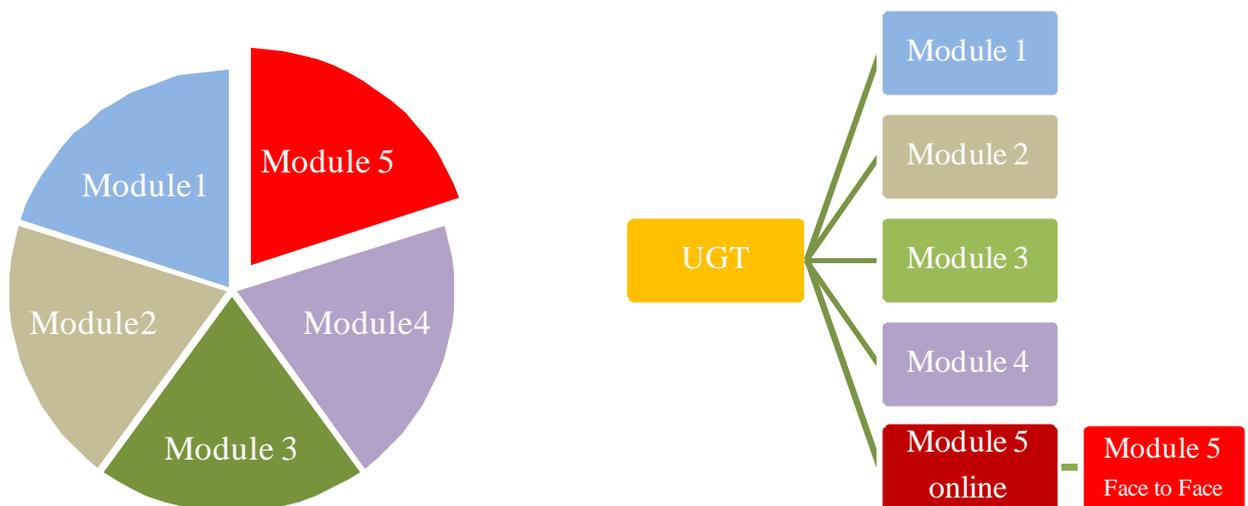


Fig.2 URBAN GREEN TRAIN course structure

## *Online learning*

Online learning is characterised by self-directed and self-organised learning and suitable to any learner. Within this context, Moodle has been identified to be the most suitable platform for both online and blended course on Urban Agriculture Entrepreneurship. This since Moodle allows the creation of dynamic and interactive learning environments, tailored to individual needs and combining face to face sessions with engaging online activities and resources.

Main benefits of using Moodle relates to the possibility it offers to integrate:

- a wide range of resources: from online booklets to lessons, from lecture notes to text-based or HTML formatted documents, videos, etc.
- many typologies of activities: questions, quizzes, assignments, exercises, etc.
- various communication channels: from chats to email and forums.
- several tools for students monitoring, assessment and evaluation, including grades, questionnaires, reports, etc.

Within the pilot phase of the course, URBAN GREEN TRAIN partners have extensively explored several Moodle features in terms of resources and tools to be used for communication and monitoring, in order to identify those more suitable for UA entrepreneurship education. For each module and topic area, a wide range of different resources (presentations, booklets, videos, lessons) and activities (assignments, readings, exercises, quizzes) have been developed and tested. The full set of modules and educational resources<sup>4</sup> has been made available outside the Moodle platform in form of narrative and static documents presenting the main content and activities, including several links to external resources.

As for communication tools, the discussion forums have been used for performing assignments and deepening topics by students, with peer review by other participants, for discussion and exchange of ideas among participants as well as for asking and offering assistance to/ by tutors and teachers.

Quizzes and exams were built to assess and review students' knowledge and evaluation questionnaires were created to collect feedbacks from students in view of the course's further improvement.

As to adapt the course to both at distance and blended modalities, two main groups of learners have been created on the Moodle platform: one for those following the course fully online and one for those attending the course in blended modality. For each group a different set of completion criteria was set up, and different badges and certificates released. Additional groups were created on a national basis that could serve for language/country specific activities and content.

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<sup>4</sup>IO2 URBAN GREEN TRAIN MODULES AND RESOURCES is available in EN, DE, IT and FR at [http://www.urbangreentrain.eu/en/?id=Pilot\\_Course](http://www.urbangreentrain.eu/en/?id=Pilot_Course)

### *Face to face learning*

The blended modality included a 2 weeks full time face to face course, focused on Module 5 and lasting about 80 h, gathering students from different countries.

Students participating in the at presence course were required to have completed most part of the online modules 1, 2, 3 and 4 (i.e. 56 out of the 70 h representing the online part of the blended course), before attending the Module 5 face to face.

Considering that the face to face course was addressing participants with different backgrounds and a heterogeneous level of knowledge in the main project topics (Urban Agriculture, Entrepreneurship), an introductory lesson was foreseen for each module's subject area, as to get participants to more homogeneous starting levels.

The teaching methodology that best suited this part of the course was the project-based learning and group work methodology.

Main course activities and contents were then related to:

- Lessons by experts on different topics linked to Urban Agriculture, Entrepreneurship Education
- Study visits to innovative local SMEs in UA
- Interactive group work activities & exercises
- Discussions
- Group work on Business Ideas.

The course was organised into two weeks: the first week leading from “UA concepts to UA business ideas” to the second one focusing on the “Development of innovative business ideas”.

During the first week groups of participants mainly worked on re-elaborating concepts from the lessons and developing business ideas based on the acquired concepts.

At the end of the first week business ideas were presented and the most interesting ones were selected to be developed further into proper business plans during the course's second week.

At the end of the course, the business plans were presented by groups of participants in an interactive presentation and discussion plenary round. These presentations served as the final exam.

### ***Course test: main activities and results***

The URBAN GREEN TRAIN Modules and Resources (IO2) have been tested within a pilot international course offered from August 2016 to January 2017, both fully online and in a blended modality, to a wide range of participants from different European countries and professional backgrounds, through the e-Learning Moodle platform of the University of Bologna.

Feedbacks from participants, tutors and teachers have been collected through *ad hoc* developed questionnaires, focused on organisational, methodological, content-related and technical aspects of the course.

The analysis to the feedbacks of pilot course participants allowed the partners to improve and finalise the Modules and Resources (IO2) and the whole course structure, as to develop a complete and consistent training pathway tackling all aspects of doing business in UA, to be offered as a model to HEIs and adult training providers from all over Europe and beyond.

A summary of the results of the course test and evaluation is available to interested individuals and organisations upon request to the project coordinator.<sup>5</sup>

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<sup>5</sup> The URBAN GREEN TRAIN pilot course report is an internal document produced by the project consortium. The executive summary will be soon available upon request to be made at the following address: [dipsa.rescue-ab@unibo.it](mailto:dipsa.rescue-ab@unibo.it)

### *Developing structure: authors & teachers*

For the development of the online course the following staff is needed:

<b>Name</b>	<b>Tasks</b>
<b>General Course coordinator</b> Expert in UA education	In charge of coordinating the development of the whole course (content and activities); works in cooperation with the Modules' Coordinators
<b>Module(s) Coordinator(s)</b> Expert in modules' topic areas	Contributes to the development of the course programme; Develops the Module structure and framework; Coordinates the development of the course contents and activities and the work of the Modules' Authors
<b>Module Author(s)/ teacher(s)</b> Expert in the specific topic's field	Develops specific resources for a given Module according to the Module Coordinator indications
<b>Moodle Coordinator</b> Expert in eLearning processes	In charge of defining the eLearning environment of the course and the modules' structure on Moodle Works in link with the General Course Coordinator and Module Coordinators for adapting contents to the tools to learning environment
<b>Moodle technical responsible</b> Expert in eLearning software development	Is responsible for the software management and updating
<b>Moodle Assistant</b> With experience in Moodle tutoring and development	In charge of uploading the content on Moodle following the Coordinator instructions
<b>Course tester &amp; reviewers</b> With experience in the course topic	Performs accurate test of the Moodle course before launching; Reviews content if needed

For the development of the face to face course:

<b>Name</b>	<b>Tasks</b>
<b>General face to face Course coordinator</b> Expert in UA education	In charge of coordinating the development of the whole at presence course programme and activities; Coordinates the course teachers
<b>Course teacher(s)</b>	Contributes to the development of the course programme; Develops specific content and lesson for the at presence part according to the programme
<b>Responsible for the course organisation</b>	In charge of organising the course (location, room, resources, time, etc.); defining registration and application rules; relationship with teachers and participants
<b>Organisation Assistant / secretary</b>	Supports the work of the responsible for the course organisation

### *Supporting structure: tutors*

The URBAN GREEN TRAIN course requires accurate tutoring at different level according to the different learning modalities.

The following structure has been tested within the online part:

<b>Name</b>	<b>Tasks</b>
<b>General tutor/s:</b> Expert in online teaching and tutoring as well as in organisational processes	In charge of the general assistance of participants, as well as of: <ul style="list-style-type: none"><li>- course application and registration</li><li>- technical problems with the platform, etc.</li><li>- general communication on the course activities and features (deadlines, news, etc.)</li><li>- motivate, remind and support students when needed</li><li>- issuing certificates and badges</li></ul>
<b>Content -related tutor(s)</b> Expert(s) in the module's topic	In charge of: <ul style="list-style-type: none"><li>- answering students' questions topic-related</li><li>- assessing and grading students' assignments</li><li>- encouraging discussion and networking among participants</li><li>- motivating and supporting students when needs</li></ul>
<b>Technical assistance</b> Expert in Moodle and ICT	When needed supports students and tutors in solving technical problems

Within the at presence part the following roles are required:

<b>Name</b>	<b>Tasks</b>
<b>Daily Coordinator</b> Expert in organisation, teaching and tutoring / Representing the hosting organisation	<ul style="list-style-type: none"><li>- Welcoming each day participants, checking if any issues needed attention, introduce the plan for the day etc)</li><li>- Encourage discussion and feedbacks</li><li>- Report to the course coordinator any problem</li><li>- Collect participants feedbacks</li></ul>
<b>Student tutor</b> Active student from the hosting organisation	In charge of: <ul style="list-style-type: none"><li>- Supporting participants from other countries and cities in daily needs</li><li>- Organising recreational activities for students</li><li>- Collecting and reporting students feedbacks to the daily coordinator</li></ul>
<b>Evaluator</b> External expert in evaluation of learning processes	In charge of: <ul style="list-style-type: none"><li>- Collecting feedbacks from participants and teachers</li><li>- Analysing the results for further improvements</li></ul>

# URBAN GREEN TRAIN COURSE

## Course content and resources

Each of the five URBAN GREEN TRAIN modules includes two or more chapters and subchapters, a list of bullet points referring to practical application of the knowledge and one or more proposals of practical activity. Each Module offers various types of resources, specifically designed and developed for the course by partners or collected among existing ones, of different types: presentations, articles, videos, images, etc... In some cases additional and optional resources are suggested to learners for deepening the knowledge in specific topics. The following table shows the different types of educational resources, and how many time they occur in the URBAN GREEN TRAIN Modules.

MODULE N.	PPTs	VIDEOS	ASSIGNMENTS	OPTIONAL MATERIALS	GROUP WORK
1	4	2	18	11	-
2	15	5	14	3	-
3	9	13	6	-	-
4	1	9	9	5	-
5	2	2	5	-	2
TOT	31	31	52	19	2

These resources, are included as external links in URBAN GREEN TRAIN Modules and Resources (IO2) and are either downloadable from the project web site or available on the web (YouTube, other web sites). Assignments refers to activities (e.g. exercises, quizzes, analysis of videos articles, etc.) required to students to encourage an active participation in the course.

Out of the 31 videos mentioned in the Modules, 5 videos have been developed by project partners especially to support learning in the URBAN GREEN TRAIN course. These videos - with subtitles in EN, IT, DE, FR - show different urban agriculture initiatives in the different partner countries and are complemented by detailed case studies developed by the project within the preliminary activity for the development of the Inventory of UA [http://www.urbangreentrain.eu/en/?id=UA\\_Enterprises&category=415](http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415). They can be used in the on line modality as virtual study visits or in the blended modality to complete the course content or for assignments.

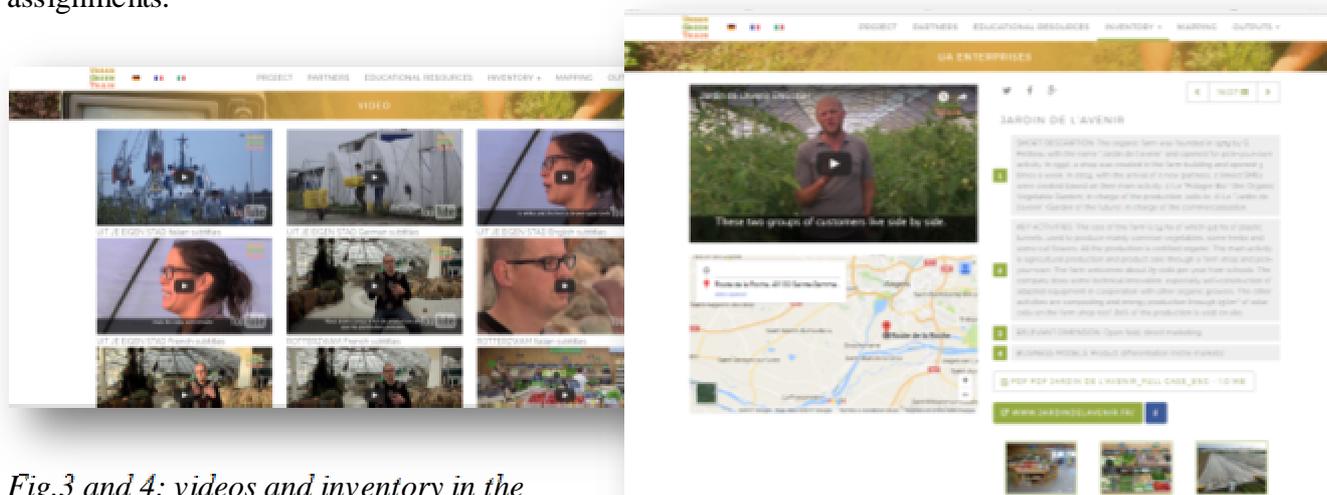


Fig.3 and 4: videos and inventory in the URBAN GREEN TRAIN web sit

*Detailed course programme*

**MODULE 1: INTRODUCTION INTO URBAN AGRICULTURE CONCEPT AND TYPES**

This Module presents the main concepts and challenges related to UA, as well as their evolution depending on the historical or worldwide geographical context. It provides knowledge on cities features, society and professional trends shaping UA environment. The UA functions and services are also addressed as a basis for activities development. Types of UA are analysed based on case studies. **At this end of this Module students are able to analyse different UA situations.** Total duration: 25 h

<b>MODULE 1: INTRODUCTION INTO UA CONCEPT AND TYPES</b>			
<b>1.1 URBAN AGRICULTURE CONCEPT AND ENVIRONMENT</b>			
<b>Subchapters</b>	<b>Learning Objectives</b>	<b>Duration</b>	<b>Learning Outcomes</b>
<ul style="list-style-type: none"> <li>- <b>1.1.1 Defining Urban Agriculture</b></li> <li>- <b>1.1.2 Trend in food and non-food consumption</b></li> <li>- <b>1.1.3 Trends in city development and urban planning</b></li> <li>- <b>1.1.4 Professional trends in relation with UA</b></li> <li>- <b>1.1.5 Territorial analysis and governance</b></li> <li>- <b>1.1.6 Challenges for UA</b></li> <li>- <b>1.1.7 Diversity and roles of actors/stakeholders in UA</b></li> </ul>	<ul style="list-style-type: none"> <li>- Compare the basis of the various definitions of UA</li> <li>- Provide consumption and urbanization context of UA</li> <li>- Present the current professional context</li> <li>- Provide knowledge on territory diagnostic and governance based on urban or peri-urban context</li> <li>- Identify the main challenges regarding UA activities</li> <li>- Characterize actors and stakeholders</li> <li>- Compare the basis of the various definitions of UA</li> </ul>	<b>6</b>	Learners are able to: <ul style="list-style-type: none"> <li>• Identify an adapted definition of UA depending on the objective and context</li> <li>• Identify opportunities &amp; constraints for UA</li> <li>• Understand professional support for UA</li> <li>• Use tools &amp; methods for a territorial analysis</li> <li>• Map actors and stakeholders</li> </ul>
<b>1.2 FROM MULTIFUNCTIONALITY TO ECOSYSTEM SERVICES OF UA</b>			
<b>Subchapters</b>	<b>Learning Objectives</b>	<b>Duration</b>	<b>Learning Outcomes</b>
<ul style="list-style-type: none"> <li>- <b>1.2.1 Concepts of multifunctionality and ecosystem services</b></li> <li>- <b>1.2.2 Services from UA</b></li> </ul>	<ul style="list-style-type: none"> <li>- Explain the evolution between multifunctionality and ecosystem services concepts</li> </ul>	<b>3</b>	Learners are able to <ul style="list-style-type: none"> <li>• Argue about UA advantages besides production</li> </ul>

<ul style="list-style-type: none"> <li>- <b>1.2.3 Sustainable development of UA</b></li> <li>- <b>1.2.4 A frame work for UA analysis</b></li> </ul>	<ul style="list-style-type: none"> <li>- Present the diversity of functions and services of UA</li> <li>- Set the basis for an analysis of UA in regards with economical, environmental and social pillar</li> </ul>		<ul style="list-style-type: none"> <li>• Identify functions and services from UA</li> <li>• Evaluate factors of UA sustainability</li> </ul>
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### 1.3 EVOLUTION OF UA DEPENDING ON THE CONTEXT

Subchapters	Learning Objectives	Duration	Learning Outcomes
<ul style="list-style-type: none"> <li>- <b>1.3.1 Evolution of UA in Europe, North America and Oceania</b></li> <li>- <b>1.3.2 Evolution of UA in Africa</b></li> <li>- <b>1.3.3 Evolution of UA in Asia</b></li> <li>- <b>1.3.4 Evolution of UA in Latin America and Caribbean</b></li> </ul>	<ul style="list-style-type: none"> <li>- Explain the historical evolution of UA in response to economical or political crises and to urban development</li> <li>- Present the various forms of UA over time and the technical, economical or political reasons</li> <li>- Set the current status of UA worldwide, with a comparison between developed and developing countries</li> <li>- Analyze the UA evolution in various parts of the world</li> </ul>	<b>8</b>	Learners are able to <ul style="list-style-type: none"> <li>• Identify constant or specific evolution factors</li> <li>• Identify constant or specific forms of UA</li> <li>• Picture of UA depending on development level</li> <li>• Understand UA status in Europe, Africa and Asia</li> </ul>

### 1.4 EVOLUTION OF UA ACTIVITY

Subchapters	Learning Objectives	Duration	Learning Outcomes
<ul style="list-style-type: none"> <li>- <b>1.4.1 Criteria for types of UA analysis</b></li> <li>- <b>1.4.2 Diversity and typology of production system in UA</b></li> <li>- <b>1.4.3 Case studies exercise</b></li> </ul>	<ul style="list-style-type: none"> <li>- Identify and organize characteristics for a typology analysis of UA activities</li> <li>- Show the high level of possibilities for UA production systems</li> <li>- Illustrate one type of UA with a documented case study</li> </ul>	<b>3</b>	Learners are able to <ul style="list-style-type: none"> <li>• Realize a typology of UA activities depending on the objective and context</li> <li>• Propose typology of UA production systems</li> <li>• Analyse in detail one type of UA</li> </ul>
<b>1.5 Bullet points: remember the economic dimension &amp; practical work:</b> To identify possible innovations for main module's subtopics		<b>1</b>	Learners are able to: <ul style="list-style-type: none"> <li>• Identify main economic factors for UA</li> </ul>

		business <ul style="list-style-type: none"> <li>• Identify economic oriented innovations</li> <li>• Identify UA characteristics which have impacted significantly the urban landscapes and its evolution in several countries/cities</li> </ul>
<p><b>1.6 Practical work</b>          To acquire knowledge about the evolution of the urban landscape and how urban agriculture might have impacted the urban landscape</p>	<b>4</b>	Learners are able to: <ul style="list-style-type: none"> <li>• Identify UA characteristics which have impacted significantly the urban landscapes and its evolution in several countries/cities</li> </ul>

## MODULE 2: RESOURCE USE FROM A CHALLENGE PERSPECTIVE

This module aims at introducing participants to the relationship between UA and urban ecology. Strategies for improving the role of UA in reducing the city ecological footprint are defined and critically addressed. Different elements contributing to resource efficiency and waste management, as well as to the citizen's wellbeing are analysed. At conclusion of the module, **students will be able to identify and assess entrepreneurial opportunities and innovation possibilities for each challenge**. Total duration: 25 h.

MODULE 2 RESOURCE USE FROM A CHALLENGE PERSPECTIVE			
2.1 UA FOR BIODIVERSITY AND ECOLOGY			
Subchapters	Learning Objectives	Duration	Learning Outcomes
<ul style="list-style-type: none"> <li>- <b>2.1.1 Urbanization and the loss of biodiversity</b></li> <li>- <b>2.1.2 Urban Agriculture and Green corridors</b></li> <li>- <b>2.1.3 Sustainable management of agricultural inputs</b></li> <li>- <b>2.1.4 Ecosystem services by ancient/new genotypes</b></li> <li>- <b>2.1.5 Management of polluted soils</b></li> </ul>	<ul style="list-style-type: none"> <li>- Introduce students to the relationship between cities and biodiversity</li> <li>- Introduce students to the concept of green corridors</li> <li>- Define how agricultural input may be sustainably managed</li> <li>- Define the role of plant genotypic resources in providing ecosystem services</li> <li>- Describe how UA can be practiced in polluted soils</li> <li>- Link ecological issues in UA systems.</li> </ul>	5,5	Learners are able to: <ul style="list-style-type: none"> <li>• Describe the link between cities and biodiversity</li> <li>• Define green corridors and identify them in a city plan</li> <li>• Identify agricultural practices that respect ecosystems and biodiversity</li> <li>• Plan and manage ecological agricultural systems</li> </ul>
2.2 UA FOR REDUCING THE CITY ECOLOGICAL FOOTPRINT			
Subchapters	Learning Objectives	Duration	Learning Outcomes

<ul style="list-style-type: none"> <li>- <b>2.2.1 Climate change mitigation: Local production and food miles</b></li> <li>- <b>2.2.2 Boosting freshness: Food waste reduction and environmental implications</b></li> <li>- <b>2.2.3 Environmental justice: Minimizing geographic tradeoffs by promoting localism</b></li> <li>- <b>2.2.4 Assessing the sustainability dimensions of UA</b></li> </ul>	<ul style="list-style-type: none"> <li>- Understand the environmental footprint of current urban food system</li> <li>- Understand the relevance of food waste on cities environmental footprint</li> <li>- Define food systems from a Life Cycle perspective in economic, environmental and social terms.</li> </ul>	<b>4,5</b>	Learners are able to: <ul style="list-style-type: none"> <li>• Describe the link between cities and biodiversity</li> <li>• Define green corridors and identify them in a city plan</li> <li>• Identify agricultural practices that respect ecosystems <b>and</b> biodiversity</li> <li>• Plan and manage ecological agricultural systems</li> </ul>
<b>2.3 UA FOR RESOURCE EFFICIENCY &amp; WASTE MANAGEMENT</b>			
<b>Subchapters</b>	<b>Learning Objectives</b>	<b>Duration</b>	<b>Learning Outcomes</b>
<ul style="list-style-type: none"> <li>- <b>2.3.1 Roof top gardens and green walls: low energy consuming building acclimatization</b></li> <li>- <b>2.3.2 Waste-to-resources: the potential uses of bio-waste</b></li> <li>- <b>2.3.3 Rainwater harvesting and greywater recovery</b></li> </ul>	<ul style="list-style-type: none"> <li>- Understand energy efficiency at city scale</li> <li>- Identify the energetic nexus between built environments and green infrastructures</li> <li>- Comprehend the relevance of composting in efficient city management</li> <li>- Define the water cycle in the urban environment and efficient water use associated with UA</li> </ul>	<b>9</b>	Learners are able to: <ul style="list-style-type: none"> <li>• Design and implement resource efficient UA projects</li> </ul>
<b>2.4 UA FOR IMPROVING CITY CLIMATE</b>			
<b>Subchapters</b>	<b>Learning Objectives</b>	<b>Duration</b>	<b>Learning Outcomes</b>
<ul style="list-style-type: none"> <li>- <b>2.4.1 UA for improving city Climate</b></li> <li>- <b>2.4.2 Air filtering green infrastructures</b></li> <li>- <b>2.4.3 Minimizing the urban heat</b></li> </ul>	<ul style="list-style-type: none"> <li>- Understand the link between urbanization and air pollution</li> <li>- Relate green infrastructures with ecosystem services including air filtering and</li> </ul>	<b>5</b>	Learners are able to: <ul style="list-style-type: none"> <li>- Design air filtering green infrastructure</li> <li>- Design climate resilient UA</li> </ul>

<p><b>island</b></p> <ul style="list-style-type: none"> <li>- <b>2.4.4. Financing UA initiatives for improved city climate</b></li> </ul>	<p>microclimate regulation</p>		
<p><b>2.5 Bullet points: remember the economic dimension &amp; practical work</b></p> <p>Identify possible innovations for main module's subtopics</p>		<p><b>1</b></p>	<p>Learners are able to:</p> <ul style="list-style-type: none"> <li>- Considered city related challenges and create UA business</li> <li>- List of putative innovations</li> </ul>

## MODULE 3: URBAN AGRICULTURE TYPES/PRODUCTION SYSTEMS AND SHORT FOOD CHAINS

This module introduces and illustrates the various UA types found in cities around the world. Various UA production systems are discussed in terms of their characteristics, location, functions, technical aspects, development challenges and support needs. Also, UA input supply, service delivery; processing and marketing systems are illustrated. **At the end of this Module students are able to recognise and describe the main types and activities of UA and the multiplicity of functions they play as well as the potential each type has in offering innovations to address specific societal challenge.** Total duration: 15 h.

MODULE 3 URBAN AGRICULTURE TYPES/PRODUCTION SYSTEMS AND SHORT FOOD CHAINS			
3.1 OVERVIEW OF UA TYPES			
Subchapters	Learning Objectives	Duration	Learning Outcomes
<ul style="list-style-type: none"> <li>- <b>3.1.1 Micro-farming in and around the house</b></li> <li>- <b>3.1.2 Rooftop farming (open air, greenhouses)</b></li> <li>- <b>3.1.3 Community and institutional gardens</b></li> <li>- <b>3.1.4 Small-scale commercial horticulture</b></li> <li>- <b>3.1.5 Small-scale commercial livestock keeping</b></li> <li>- <b>3.1.6 Urban aquaculture/aquaponics</b></li> <li>- <b>3.1.7 Small-scale specialized production system</b></li> <li>- <b>3.1.8 Large-scale agro-enterprises</b></li> <li>- <b>3.1.9 Multifunctional farms</b></li> <li>- <b>3.1.10 Urban forestry</b></li> <li>- <b>3.1.11 Vertical farming (wall, in building, soilless or not)</b></li> <li>-</li> </ul>	<ul style="list-style-type: none"> <li>- Introduce different types of UA that can be found in cities around the world</li> <li>- Present a typology of different forms and expressions of UA</li> <li>- Give illustrative examples and best practice cases of different UA types</li> </ul>	<b>5</b>	<p>Learners are able to:</p> <ul style="list-style-type: none"> <li>- Discuss the need for a typology of UA systems</li> <li>- Differentiate among various UA production, input-supply, service delivery, processing and marketing systems</li> <li>- Recognize and describe the main types and activities of UA and the multiplicity of functions they play</li> <li>- Reflect on the presence of such UA types in your own city and the relevance of these types for various policy objectives</li> </ul>

<b>3.2 UA INTEGRATION IN AGRIBUSINESS</b>			
<b>Subchapters</b>	<b>Learning Objectives</b>	<b>Duration</b>	<b>Learning Outcomes</b>
<ul style="list-style-type: none"> <li>- <b>3.2.1 UA and Agribusiness</b></li> <li>- <b>3.2.2 The input supply part of the food value chain</b></li> <li>- <b>3.2.3 Processing and marketing</b></li> </ul>	<ul style="list-style-type: none"> <li>- Analyse the economic role of agriculture in wider society and relevant trends</li> <li>- Describe the links of UA with different stages of the food value chain</li> <li>- Introduce different types of marketing of UA produce, including short food supply chain</li> </ul>	<b>4</b>	Learners are able to: <ul style="list-style-type: none"> <li>- Identify main linkages between UA, wider economy and food value chains</li> <li>- Analyze links between UA and food value chains in specific cases</li> </ul>
<b>3.3 INNOVATION IN UA</b>			
<b>Subchapters</b>	<b>Learning Objectives</b>	<b>Duration</b>	<b>Learning Outcomes</b>
<ul style="list-style-type: none"> <li>- <b>3.3.1 Innovation in UA</b></li> </ul>	<ul style="list-style-type: none"> <li>- Present innovation needs of UA types and give illustrative examples of these</li> <li>- Explore relations between differentiated innovation needs and specific UA settings in terms of resource use, location, scale, policy and institutional framework, functions, technical aspects, and main development challenges</li> </ul>	<b>3</b>	Learners are able to: <ul style="list-style-type: none"> <li>- Identify different innovations that address the specific challenges and capture the specific potentials associated with particular UA types and activities.</li> </ul>
<b>3.4 Bullet points: remember the economic dimension &amp; practical work</b>		<b>3</b>	

## MODULE 4 “NETWORKING AND GOVERNANCE”

This module looks into the importance of policy schemes and regulations, communication with (private and public) stakeholders, and the building of social networks for successful UA initiatives. Policy schemes and regulations can be a constraint for UA initiatives, but on the other hand offer opportunities for support. Social networks and communication, on their turn, are key for effectively mobilizing resources and constructing markets for specific products and services. The module covers different governance approaches and highlights several practical examples of governance and networking. **At the end of this module students are able to identify relevant governance and networking aspects and scale levels for UA success.** Total duration: 15 h

MODULE 4 “NETWORKING AND GOVERNANCE”			
4.1 GOVERNANCE ISSUE AND NETWORKING			
Subchapters	Learning Objectives	Duration	Learning Outcomes
- <b>4.1.1 Introduction to Governance and Networking</b>	<ul style="list-style-type: none"> <li>- Explain the importance of governance issues and networking for the successful operation of UA initiatives.</li> <li>- Distinguish different private, public and civil society stakeholders and their role in UA initiatives.</li> <li>- Highlight different governance dimensions and relevant scale levels of governance</li> </ul>	<b>2,5</b>	Learners are able to: <ul style="list-style-type: none"> <li>- Identify relevant governance and networking aspects and scale levels for UA success</li> <li>- Analyze concrete examples of governance relations and the role of different stakeholders</li> </ul>
4.2 LEGAL AND POLICY ISSUES			
Subchapters	Learning Objectives	Duration	Learning Outcomes

<ul style="list-style-type: none"> <li>- <b>4.2.1 What is policy?</b></li> <li>- <b>4.2.2 Policy dimensions of UA</b></li> <li>- <b>4.2.3 Constraints that limit the development of UA</b></li> <li>- <b>4.2.4 Policy instruments for UA</b></li> <li>- <b>4.2.5 Examples of policy and regulations</b></li> <li>- <b>4.2.6 Key policy recommendations and courses of action</b></li> <li>- <b>4.2.7 Policy lobbying strategies</b></li> </ul>	<ul style="list-style-type: none"> <li>- Explain what are relevant legal and policy issues in relation to UA and define food policy</li> <li>- Explain different relevant policy dimensions and key policy instruments of UA.</li> <li>- Present policy recommendations to support UA and describe best practice examples</li> <li>- Give examples of how lobbying activities can help influencing policy and support policy change.</li> </ul>	<b>5,5</b>	Learners are able to: <ul style="list-style-type: none"> <li>- Define food policy and identify main relevant policy dimensions</li> <li>- Have an overview of different policy instruments to be used a local level to support UA</li> <li>- Give some examples of UA policies and policy lobbying activities</li> </ul>
<b>4.3 NETWORKS AND BUSINESSES – CASE COFAMI</b>			
<b>Subchapters</b>	<b>Learning Objectives</b>	<b>Duration</b>	<b>Learning Outcomes</b>
<ul style="list-style-type: none"> <li>- <b>4.3.1 Networks and businesses</b></li> </ul>	<ul style="list-style-type: none"> <li>- Present the role of social networks and collective action in the success of UA initiatives</li> <li>- Give examples of collective marketing initiatives and institutional arrangements between state, market, and civil society</li> </ul>	<b>3</b>	Learners are able to: <ul style="list-style-type: none"> <li>- Identify forms of collective actions and social networks that foster the success of UA</li> <li>- Give some examples of best practices of networks</li> </ul>
4.4 Bullet points: remember the economic dimension & practical work		<b>4</b>	

## MODULE 5: “THE WORLD OF BUSINESS AND URBAN DEMANDS”

This module aims to deliver information on urban market theory, consumer demands and (qualitative) market research, which are all three of crucial importance to guide business ideas based on the demands of (potential) customers. It also provides a classification of UA business models as well as the strategic management templates Business Model Canvas and Value Proposition Canvas. These templates support future entrepreneurs in developing their own business idea – based on an overview of already established UA business models. A strong focus is put on writing a business plan adequate to address banks or other lenders. Additional information on marketing and supply chain management close Module 5. **At the end of this module students are able to write a business plan for their UA business ideas and projects.** Total duration: 70 h.

MODULE 5 “THE WORLD OF BUSINESS AND URBAN DEMANDS”			
5.1 ENTREPRENEURSHIP AND URBAN DEMANDS			
Subchapters	Learning Objectives	Duration	Learning Outcomes
<ul style="list-style-type: none"> <li>- <b>5.1.1 Introduction and overview</b></li> <li>- <b>5.1.2 Urban market theory and consumer demands</b></li> <li>- <b>5.1.3 Qualitative market research</b></li> </ul>	<ul style="list-style-type: none"> <li>- Put the customers at the heart of your urban agriculture business idea</li> <li>- Be aware of the food and urban food market</li> <li>- Be able to consider consumer demands and behaviours</li> <li>- Know about (qualitative) market research and know how to conduct the research</li> </ul>	<b>10</b>	Learners are able to: <ul style="list-style-type: none"> <li>- detect customer groups relevant for the business idea</li> <li>- analyze their demands and behaviours</li> <li>- choose the right market research approach to get insights into customers’ thinking and decision-making</li> </ul>
5.2 PLANNING THE BUSINESS			
Subchapters	Learning Objectives	Duration	Learning Outcomes

<ul style="list-style-type: none"> <li>- <b>5.2.1 Business Models of urban agriculture</b></li> <li>- <b>5.2.2 Business Model Canvas and Value Proposition Canvas</b></li> <li>- <b>5.2.3 Templating the business project</b></li> <li>- <b>5.2.4 Financing</b></li> <li>- <b>5.2.5 Detailing the business project</b></li> </ul>	<ul style="list-style-type: none"> <li>- Present urban agriculture business models</li> <li>- Explain the strategic management templates Business Model Canvas and Value Proposition Canvas</li> <li>- Be able to create an own business idea in urban agriculture</li> <li>- Receive the required background information needed to write an own business plan (s. 5.4)</li> </ul>	<b>23</b>	Learners are able to: <ul style="list-style-type: none"> <li>- differentiate business models and classify case studies into the presented classification of UA business models</li> <li>- use Business Model Canvas and Value Proposition Canvas to describe any business as well as their own business idea</li> <li>- write a business plan (s. 5.4)</li> </ul>
<b>5.3 RUNNING THE BUSINESS</b>			
<b>Subchapters</b>	<b>Learning Objectives</b>	<b>Duration</b>	<b>Learning Outcomes</b>
<ul style="list-style-type: none"> <li>- <b>5.3.1 Marketing</b></li> <li>- <b>5.3.2 Supply Chain Management and Logistics</b></li> </ul>	<ul style="list-style-type: none"> <li>- Present marketing as an important element of business, especially in urban agriculture</li> <li>- Get an overview on supply chains</li> </ul>	<b>10</b>	Learners are able to: <ul style="list-style-type: none"> <li>- develop an own marketing strategy for their business idea</li> <li>- differentiate between supply chains and apply the ones fitting to their idea</li> </ul>
<b>5.4 Practical group work / project work</b>  <b>To write your own business plan for your business idea / project you want to establish</b> Face to face: to work in small group on a common business ideas and writing a business plan Online: to work individually on a own business idea and writing a business plan		<b>17 + 10</b>	Learners are able to: <ul style="list-style-type: none"> <li>- write a business plan for their urban agriculture business idea/project</li> </ul>

# RECOGNITION OF QUALIFICATIONS AND COMPETENCES

## *Recognition of credits*

In order to assure portability of the course participants' qualifications, the URBAN GREEN TRAIN Curriculum is undergoing formal approval procedures by the partner HEIs, and in particular within the University of Bologna – Department of Agricultural Science (Italy) and the South-Westphalia University of Applied Sciences - Department of Agriculture, Soest (Germany) and the Agrocampus Ouest Angers University (France).

At the end of this process, the course will be included in the study plan of partner universities for ECTS recognition, enabling students to receive 5 ECTS.

### UNIBO(IT)

The Agricultural Sciences Department of UNIBO (IT) gives up to five ECTS to students enrolled in the University of Bologna and more specifically in the Master on Agricultural Sciences and Technologies. The Master course is composed by 120 ECTS, out of which 8 are selected by the student as “choice” credits. Furthermore, this year, the student Pietro Tonini, enrolled in the International Master in Horticultural Sciences, taught in English, received five “choice credits” for attending the Urban Green Train pilot course.

### SWUAS (DE)

Currently, the course is offered as project work ('Projektarbeit') at the Department of Agriculture of SWUAS. Students enrolled in the University of Applied Sciences receive five ECTS credits in case they participate successfully in the whole course covering all five modules. The URBAN GREEN TRAIN course serves as a voluntary module parallel to other obligatory courses. Students can choose among a list of voluntary courses; including this URBAN GREEN TRAIN course. For the winter semester 2017/18 SWUAS intends to offer it as an elective subject.

### AGREENIUM (FR)

As a test for Agreenium partners, the module is offered to students of Agrocampus Ouest Angers enrolled in master 1 in horticulture as “choice” teaching unit. It has been offered also to students in master 2 in “landscape engineering” and “fruits & vegetables, food and markets”. Students receive from two to five credits depending on the level of completion. Due to the e-learning nature of the Urban Green Train course, students can also take this course on a voluntary basis in complement to mandatory modules.

### *Example of integration in existing training offers*

Partners have worked within and outside their respective organisations in order to make available the URBAN GREEN TRAIN course for integration in existing training offers in UA, either at Bachelor and Master levels.

#### UNIBO (IT)

The Urban Green Train course has already been included in the Master in Agricultural Sciences and Technologies of Bologna University. Furthermore, in the coming years, it can also be included (fully or partially) in the following Bachelor and Master courses of the school of agriculture and veterinary medicine:

- Bachelor courses
  - o Aquaculture and fish production hygiene (Cesenatico Centre)
  - o Marketing and Economics of the agro-industrial system (Bologna Campus)
  - o Animal production (Bologna Campus)
  - o Agricultural Technology (Bologna Campus)
  - o Ornamental plants and landscape protection (Imola Centre)
- Master courses
  - o International horticultural science (Bologna Campus)
  - o Planning and management of agro-territorial, forest and landscape (Bologna Campus)
  - o Agricultural Sciences and Technologies (Bologna Campus)

Due to its double form (online and blended learning), the course can easily adapt to every curriculum without interfering with the existing educational offer and timetable.

Furthermore, being an interdisciplinary course, it can also integrate other existing courses in the field of architecture, landscape architecture and urbanism, social sciences, civil engineering.

Preliminary discussion has been undertaken at UNIBO for reciprocal integration of the curricula of Urban Green Train and Sociology and Social Services, coordinated by prof. Roberta Paltrinieri.

#### SWUAS (DE)

In addition to the integration of the course as project work ('Projektarbeit') and voluntary module in the bachelor course of SWUAS' Department of Agriculture, parts of the course are used for other bachelor and master lessons offered by different agronomy professors at the Department of Agriculture.

Beyond SWUAS, two other German Universities of Applied Sciences (Nürtingen, Erfurt) have already mentioned their interest in offering the Urban Green Train course. SWUAS is in close contact with two representatives of these Universities of Applied Sciences aiming to offer the course there soon; most likely winter semester 2017/18.

#### AGREENIUM (FR)

Offered as a choice module in master 1 in horticulture at Agrocampus Ouest (Angers), the course will be deployed (in full or partially and corresponding resources) at various potential levels :

- Master 1 horticulture : module "urban and periurban horticulture"
- Master 2 : in the new course "Urban Green spaces engineering" for both landscape and horticulture students
- Master 2 horticulture : in the new course "Engineering of horticultural productions"

There is an interest to valorize Urban Green Train course and resources in the "Urban agriculture" master at AgroParisTech.

The Urban Green Train course will be included in Agrocampus Ouest moodle platform. The English version of the course will be an asset to increase the proportion of courses offered in

English to French students. The course will also be used at Agrocampus Ouest to propose a new life-long learning module for professionals on urban agriculture and/or entrepreneurship.

Finally, the Urban Green Train online course will be made available on Agreenium digital university platform where various MOOC are proposed (<https://en.agreenium.fr/u/home>).

RUAF

(NL)

RUAF is exploring options for the integration of (part of the) UGT modules in the course curriculum of several courses offered by Aeres University of Applied Sciences in Almere (NL) related to topics like food, consumer behaviour, biology, short food chains and food systems transition.

The RUAF team will also use the modules in training courses they offer in collaboration with educational institutes like Ryerson University (Canada) and Wageningen University (NL) as well as in training offered with the RUAF global partnership. In addition, RUAF will make the modules available on their moodle (see: <http://www.ruaf.org/distance-learning-courses>).

## *Competence framework*

In order to make the URBAN GREEN TRAIN curriculum an effective bridge between the world of education and that of work, it is essential to ground it on a clear competences framework. URBAN GREEN TRAIN partners based their efforts on this regards on the “Entrepreneurship Competence study<sup>6</sup>” (EntreComp), realised by the JRC on behalf of the Directorate General for Employment, Social Affairs and Inclusion (DG EMPL) in January 2015 and issued on 2016.

The EntreComp study represents the point of reference for any entrepreneurial learning as it provides a comprehensive framework for the definition of the entrepreneurship competence and describes its components in terms of knowledge, skills and attitudes.

Within EntreComp, entrepreneurship is defined as a “transversal competence, which applies to all spheres of life: from nurturing personal development, to actively participating in society, to (re)entering the job market as an employee or as a self-employed person, and also to starting up ventures (cultural, social or commercial)”.

The conceptual model is built upon the description of entrepreneurship as the “the ability to turn ideas into action that generate value for someone other than oneself”, and is made up of 3 competence areas, each of them including 5 specific sub-competences:

- Ideas and opportunities
- Resources
- Into action

The complete framework, made up of 15 competences (Fig. 3) can be seen as starting point to be applied and adapted to any domain and possible value chain, as well as to different contexts and sectors: from individuals to groups, from private to public or third sectors initiatives, as well as to different types of entrepreneurship, from the social to the green and digital ones.

URBAN GREEN TRAIN partners have worked in the direction of developing a complete framework for urban agriculture entrepreneurship, by identifying EntreComp competences within the offered course & curriculum.

The tables below show the link among each EntreComp competence area and the different URBAN GREEN TRAIN modules, especially in terms of specific competences and expected learning outcomes.

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<sup>6</sup> Reference to the Entrecomp competences framework for green entrepreneurs: Bacigalupo, M., Kampylis, P., Punie, Y., Van den Brande, G. (2016). *EntreComp: The Entrepreneur-ship Competence Framework*. Luxembourg: Publication Office of the European Union; EUR 27939 EN; doi:10.2791/593884

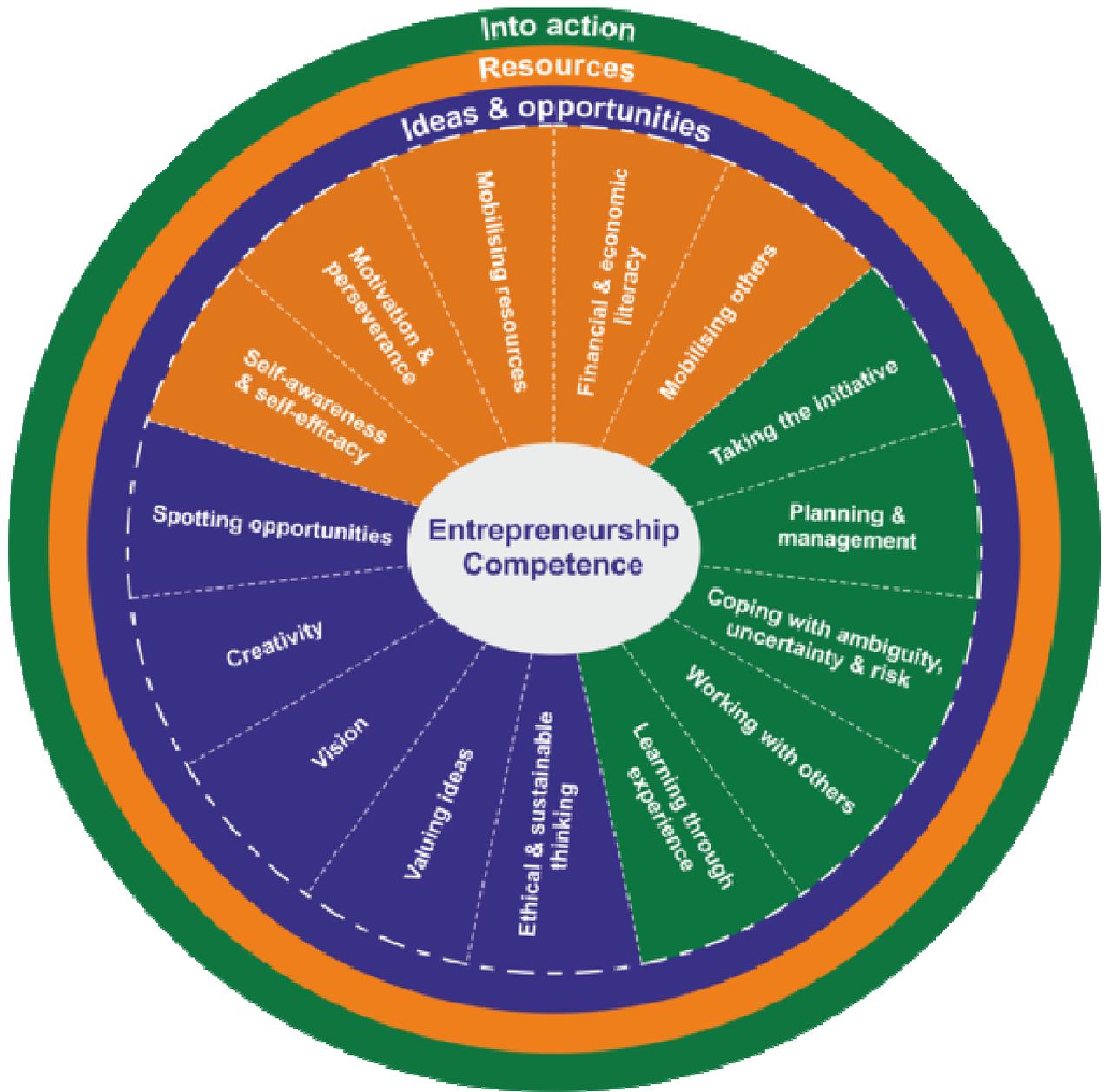


Fig.5 The EntreComp framework

<p style="text-align: center;"><b>ENTRECOMP 1 IDEAS &amp; OPPORTUNITIES</b></p>	<p style="text-align: center;"><b>UA ENTRECOMP IN URBAN GREEN TRAIN COURSE</b></p>
<p><b>1.1 SPOTTING OPPORTUNITIES</b></p> <ul style="list-style-type: none"> <li>• Identify and seize opportunities to create value by exploring the social, cultural and economic land-scape</li> <li>• Identify needs and challenges that need to be met</li> <li>• Establish new connections and bring together scattered elements of the landscape to create opportunities to create value</li> </ul>	<p><b>ANALYSE DIFFERENT UA SITUATIONS IN THE GIVEN CONTEXT (MODULE 1)</b></p> <p>1.1 Urban agriculture concept and environment</p> <ul style="list-style-type: none"> <li>• Identify and adapt the UA initiative to the objective &amp; context</li> <li>• Identify opportunities &amp; constraints for UA initiatives in the given context</li> <li>• Understand the professional support needed</li> <li>• Carry out an accurate territorial analysis</li> <li>• Map actors and stakeholders</li> </ul>
<p><b>1.2 CREATIVITY</b></p> <ul style="list-style-type: none"> <li>• Develop several ideas and opportunities to create value, including better solutions to existing and new challenges Explore and experiment with innovative approaches</li> <li>• Combine knowledge and resources to achieve valuable effects</li> </ul>	<p><b>ANALYSE DIFFERENT UA SITUATIONS IN THE GIVEN CONTEXT (MODULE 1)</b></p> <p>1-4 Evolution of urban agriculture activity</p> <ul style="list-style-type: none"> <li>• Realize a typology of UA activities depending on the objective and context</li> <li>• Propose typology of UA production systems</li> <li>• Analyse in detail one type of UA</li> </ul> <p><b>RECOGNISE THE MULTIPLICITY OF FUNCTIONS OF UA TYPES AS WELL AS THE POTENTIAL EACH TYPE HAS IN OFFERING INNOVATIONS TO ADDRESS SPECIFIC SOCIETAL CHALLENGE (MODULE 3)</b></p> <p><b>3.1 Overview of Urban Agriculture types</b></p> <ul style="list-style-type: none"> <li>• Understand the need for a typology of UA system</li> <li>• Differentiate among various urban agriculture production, input-supply, service delivery, processing and marketing systems</li> <li>• Recognize and describe the main UA types and activities of and the multiplicity of functions they play</li> </ul> <p>Reflect on the presence of such UA types in his own city and the relevance of these types for various policy objectives</p>

<p><b>1.3 VISION</b></p> <ul style="list-style-type: none"> <li>• Imagine the future</li> <li>• Develop a vision to turn ideas into action</li> <li>• Visualise future scenarios to help guide effort and action</li> </ul>	<p><b>ANALYSE DIFFERENT UA SITUATIONS IN THE GIVEN CONTEXT (MODULE 1)</b></p> <p>1.3 Evolution of urban agriculture depending on the context</p> <ul style="list-style-type: none"> <li>• Identify constant or specific evolution factors</li> <li>• Identify constant or specific forms of UA</li> <li>• Picture of UA depending on development level</li> <li>• Understand UA status in Europe, Africa and Asia</li> </ul>
<p><b>1.3 VALUING IDEAS</b></p> <ul style="list-style-type: none"> <li>• Judge what value is in social, cultural and economic terms</li> <li>• Recognise the potential an idea has for creating value</li> <li>• Identify suitable ways of making the most out of it</li> </ul>	<p><b>RECOGNISE THE MULTIPLICITY OF FUNCTIONS OF UA TYPES AS WELL AS THE POTENTIAL EACH TYPE HAS IN OFFERING INNOVATIONS TO ADDRESS SPECIFIC SOCIETAL CHALLENGE (MODULE 3)</b></p> <p><b>3.3 Innovation in Urban Agriculture</b></p> <p>Identify different innovations that address the specific challenges and capture the specific potentials associated with particular urban agriculture types and activities.</p>
<p><b>1.4 ETHICAL AND SUSTAINABLE THINKING</b></p> <ul style="list-style-type: none"> <li>• Assess the consequences of ideas that bring value and the effect of entrepreneurial action on the target community, the market, society and the environment</li> <li>• Reflect on how sustainable long-term social, cultural and economic goals are, and the course of action chosen</li> <li>• Act responsibly</li> </ul>	<p><b>ANALYSE DIFFERENT UA SITUATIONS IN THE GIVEN CONTEXT (MODULE 1)</b></p> <p>1-2 From multi-functionality to ecosystem services of urban agriculture</p> <ul style="list-style-type: none"> <li>• Argue about UA advantages besides production</li> <li>• Identify functions and services from UA</li> <li>• Evaluate factors of UA sustainability</li> </ul>

<b>ENTRECOMP 2 RESOURCES</b>	<b>UA ENTRECOMP IN URBAN GREEN TRAIN COURSE</b>
<p><b>2.1 SELF-AWARENESS AND SELF-EFFICACY</b></p> <ul style="list-style-type: none"> <li>• Reflect on your needs, aspirations and wants in the short, medium and long term</li> <li>• Identify and assess your individual and group strengths and weaknesses</li> <li>• Believe in your ability to influence the course of events, despite uncertainty, setbacks and temporary failures</li> </ul>	<p><b>DEVELOP AND PLAN HER/ HIS OWN BUSINESS IDEA IN DETAILS USING ADEGUATE TOOLS (MODULE 5)</b></p> <p>5.1 Entrepreneurship and urban demands</p> <ul style="list-style-type: none"> <li>• Detect customer groups relevant for the business idea</li> <li>• Analyze their demands and behaviours</li> <li>• Choose the right market research approach to get insights into customers' thinking and decision-making</li> </ul> <p>5.4 Practical group work / project work</p>
<p><b>2.2 MOTIVATION AND PERSEVERANCE</b></p> <ul style="list-style-type: none"> <li>• Be determined to turn ideas into action and satisfy your need to achieve</li> <li>• Be prepared to be patient and keep trying to achieve your long-term individual or group aims</li> <li>• Be resilient under pressure, adversity, and temporary failure</li> </ul>	<p><b>DEVELOP AND PLANG HER/ HIS OWN BUSINESS IDEA IN DETAILS USING ADEGUATE TOOLS (MODULE 5)</b></p> <p>5.4 Practical group work / project work</p> <ul style="list-style-type: none"> <li>• Elevator pitch</li> </ul>
<p><b>2.3 MOBILIZING RESOURCES</b></p> <ul style="list-style-type: none"> <li>• Get and manage the material, non-material and digital resources needed to turn ideas into action</li> <li>• Make the most of limited resources</li> <li>• Get and manage the competences needed at any stage, including technical, legal, tax and digital competences</li> </ul>	<p><b>DEVELOP AND PLANNING HER/ HIS OWN BUSINESS IDEA IN DETAILS USING ADEGUATE TOOLS (MODULE 5)</b></p> <p>5.2 Planning the business</p> <ul style="list-style-type: none"> <li>• Differentiate business models and classify case studies into the presented classification of UA business models</li> </ul> <p>5.3 Running the business</p> <ul style="list-style-type: none"> <li>• Develop an own marketing strategy for their business idea</li> <li>• Differentiate between supply chains and apply the ones fitting to their idea</li> </ul>

<p><b>2.4 FINANCIAL AND ECONOMIC LITERACY</b></p> <ul style="list-style-type: none"> <li>• Estimate the cost of turning an idea into a value-creating activity</li> <li>• Plan, put in place and evaluate financial decisions over time</li> <li>• Manage financing to make sure my value-creating activity can last over the long term</li> </ul>	<p><b>DEVELOP AND PLAN HER/ HIS OWN BUSINESS IDEA IN DETAILS USING ADEGUADE TOOLS (MODULE 5)</b></p> <p><b>5.3 Planning the business</b></p> <ul style="list-style-type: none"> <li>• Use Business Model Canvas and Value Proposition Canvas to describe any business as well as oneself individual business idea</li> <li>• Write a business plan (s. 5.4)</li> </ul>
<p><b>2.5. MOBILIZING OTHERS</b></p> <ul style="list-style-type: none"> <li>• Inspire and enthuse relevant stakeholders</li> <li>• Get the support needed to achieve valuable out-comes</li> <li>• Demonstrate effective communication, persuasion, negotiation and leadership</li> </ul>	<p><b>IDENTIFY RELEVANT GOVERNANCE AND NETWORKING ASPECTS AND SCALE LEVELS FOR UA SUCCESS (MODULE 4)</b></p> <p><b>4.1. Introduction to Governance and Networking</b></p> <ul style="list-style-type: none"> <li>• Identify relevant governance and networking aspects and scale levels for UA success</li> <li>• Analyze concrete examples of governance relations and the role of different stakeholders</li> </ul>

<p style="text-align: center;"><b>ENTRECOMP 3 INTO ACTION</b></p>	<p style="text-align: center;"><b>UA ENTRECOMP IN URBAN GREEN TRAIN COURSE</b></p>
<p><b>3.1 TAKING THE INITIATIVE</b></p> <ul style="list-style-type: none"> <li>• Initiate processes that create value</li> <li>• Take up challenges</li> <li>• Act and work independently to achieve goals, stick to intentions and carry out planned tasks</li> </ul>	<p><b>IDENTIFY &amp; ASSESS ENTREPRENEURIAL OPPORTUNITIES AND INNOVATION POSSIBILITIES FOR EACH CHALLENGE (MODULE 2)</b></p> <p><b>2.1 Urban agriculture for biodiversity and ecology</b></p> <ul style="list-style-type: none"> <li>• Identify agricultural practices that respect ecosystems and biodiversity</li> <li>• Plan and manage ecological agricultural systems</li> </ul> <p><b>2.2 UA for reducing the city ecological footprint</b></p> <ul style="list-style-type: none"> <li>• Critically assess diverse food systems in terms of environmental, economic and social terms</li> <li>• Plan and develop proximity agriculture projects</li> </ul> <p><b>2.3 UA for resource efficiency and waste management</b></p> <ul style="list-style-type: none"> <li>• Design and implement resource efficient UA projects</li> </ul> <p><b>2.4 UA for improving city climate</b></p> <ul style="list-style-type: none"> <li>• Design air filtering green infrastructure</li> <li>• Design climate resilient UA</li> </ul> <hr/> <p><b>RECOGNISE THE MULTIPLICITY OF FUNCTIONS OF UA TYPES AS WELL AS THE POTENTIAL EACH TYPE HAS IN OFFERING INNOVATIONS TO ADDRESS SPECIFIC SOCIETAL CHALLENGE (MODULE 3)</b></p> <p><b>3.2 UA integration in agri-business</b></p> <ul style="list-style-type: none"> <li>• Identify main linkages between urban agriculture, wider economy and food value chains</li> <li>• Analyse links between urban agriculture and food value chains in specific cases</li> </ul> <p><b>3.3 Innovation in Urban Agriculture</b></p> <ul style="list-style-type: none"> <li>• Identify different innovations that address the specific challenges and capture the specific potentials associated with particular urban agriculture types and activities.</li> </ul>

**3.2 PLANNING AND MANAGE-MENT**

- Set long-, medium- and short-term goals
- Define priorities and action plans
- Adapt to unforeseen changes

**IDENTIFY & ASSESS ENTREPRENEURIAL OPPORTUNITIES AND INNOVATION POSSIBILITIES FOR EACH CHALLENGE (MODULE 2)**

**2.1 Urban agriculture for biodiversity and ecology**

- Identify agricultural practices that respect ecosystems and biodiversity
- Plan and manage ecological agricultural systems

**2.2 UA for reducing the city ecological footprint**

- Critically assess diverse food systems in terms of environmental, economic and social terms
- Plan and develop proximity agriculture projects

**2.3 UA for resource efficiency and waste management**

- Design and implement resource efficient UA projects

**2.4 UA for improving city climate**

- Design air filtering green infrastructure
- Design climate resilient UA

**3.3 COPING WITH UNCERTAINTY, AMBIGUITY AND RISK**

- Make decisions when the result of that decision is uncertain, when the information available is partial or ambiguous, or when there is a risk of unintended outcomes
- Within the value-creating process, include structured ways of testing ideas and prototypes from the early stages, to reduce risks of failing
- Handle fast-moving situations promptly & flexibly

**5.4 Practical group work / project work**

- Business idea competition

**3.4 WORKING WITH OTHERS**

- Team up, collaborate and network
- Work together and cooperate with others to develop ideas and turn them into action
- Network
- Solve conflicts and face up to competition positively when necessary

**5.4 Practical group work / project work**

By working in groups to the development of a common business model and business plan, participants learn how to collaborate and work in team, and how to solve conflict;

The presence of several groups working on different projects stimulate the ability to networking and to face up competition (e.g. within the “elevator pitch”).

	<p><b>IDENTIFY RELEVANT GOVERNANCE AND NETWORKING ASPECTS &amp; SCALE LEVELS FOR UA SUCCESS (MODULE 4)</b></p> <p><b>4.3 Networks and businesses – Case COFAMI</b></p> <ul style="list-style-type: none"> <li>• Identify forms of collective actions and social networks that foster the success of urban agriculture</li> </ul>
<p><b>3.5. LEARNING THROUGH EXPERIENCE</b></p> <ul style="list-style-type: none"> <li>• Use any initiative for value creation as a learning opportunity</li> <li>• Learn with others, including peers and mentors</li> <li>• Reflect and learn from both success and failure (your own and other people's)</li> </ul>	<p><b>5.4 Practical group work / project work</b></p> <p>By conducting project work in groups or individually by oneself they have the opportunity to learn by experience in a safe environment and together with peers.</p>

## URBAN GREEN TRAIN certificates

During the course pilot test, URBAN GREEN TRAIN partners elaborated specific certificates to confirm the completion of the course by participants. The certificates, signed by the project coordinator on behalf of the whole partnership, were issued into two different versions, according to the main course modality followed by participants, i.e. online and blended.

URBAN GREEN TRAIN certificated referred to:

- ERASMUS+ and URBAN GREEN TRAIN project as general framework of the course development
- Main course learning objective, e.g. **to provide knowledge and competences for promoting new business oriented initiatives in urban agriculture.**
- Course time framework, duration and modality
- Participation in the testing of the educational materials
- Project web site: <http://www.urbangreentrain.eu>.

In addition, they have been integrated with an online “badge” issued by the Moodle platform and awarded to all students completing the final examinations and evaluation questionnaires related to the course, and therefore contributing to its improvement.



Fig.6 URBAN GREEN TRAIN certificates and badges

# URBAN AG: A CLUSTER ON ENTREPRENEURIAL URBAN AGRICULTURE

## *UrbanAg: aims and objectives*

In recent years, growing interest in Urban Agriculture initiatives has led to the sprouting of a number of networks and think tanks of researchers, entrepreneurs as well as the wider public. This is the case with the FAO group “Food for the cities”, but also for those developed through several internationally funded projects (e.g. “Supurbfood”, COST projects “Allotment gardens in European Cities” and “Urban Agriculture Europe”, LLP-Grundtvig “HORTIS”, Erasmus+ “Urban Green Train”, “Carrot City”), or those promoted by world-leading scientific societies (e.g. ISHS-Landscape and Urban Horticulture commission).



In order to extend the impact of these projects and activities and especially in view of creating educational tools for boosting innovative Urban Agriculture enterprises, forms of cooperation between Research, Education and Business shall be pursued.

The cluster has been constituted as a working group, involving HEIs, SMEs, NGOs and PA, but also national clusters (e.g. Vegepolys) involved in the dynamics

of urban agriculture. The cluster aims at scheduling periodical discussion forums, meetings and newsletters with the following objectives:

- 1) Creating a knowledge exchange platform on the most innovative entrepreneurial forms in Urban Agriculture as well as on the identification of main potentials and challenges;
- 2) Connecting experts from different disciplines in order to create a discussion network on how to implement interdisciplinary training opportunities in the field of Urban Agriculture;
- 3) Responding to the needs of both the private sector and civil society to address research questions and promote topics and initiatives to main funding agencies in a timely manner.

The cluster has been launched at national level during the project multiplier events in the partner countries and was officially constituted in July 2017 at the URBAN GREEN TRAIN final international conference in Paris (10-11 July 2017). It will be convened for the first time during the International Symposium on “Greener Cities for More Efficient Ecosystem Services in a Climate Changing World<sup>7</sup>”, Bologna, Italy, September 12-15, 2017.

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<sup>7</sup> <https://www.greencities2017.org>

## Membership

The membership campaign started in May 2017, and gathered 83 members, representing higher education institutions (HEI, 47), public authorities (PA, 6), non-governmental organizations (NGO, 6) and small/medium enterprises (SME, 24) from several world countries (Brazil, Canada, France, Germany, Italy, Portugal, Norway, Portugal, Spain, The Netherlands, UK and USA), as indicated in the chart and map below.

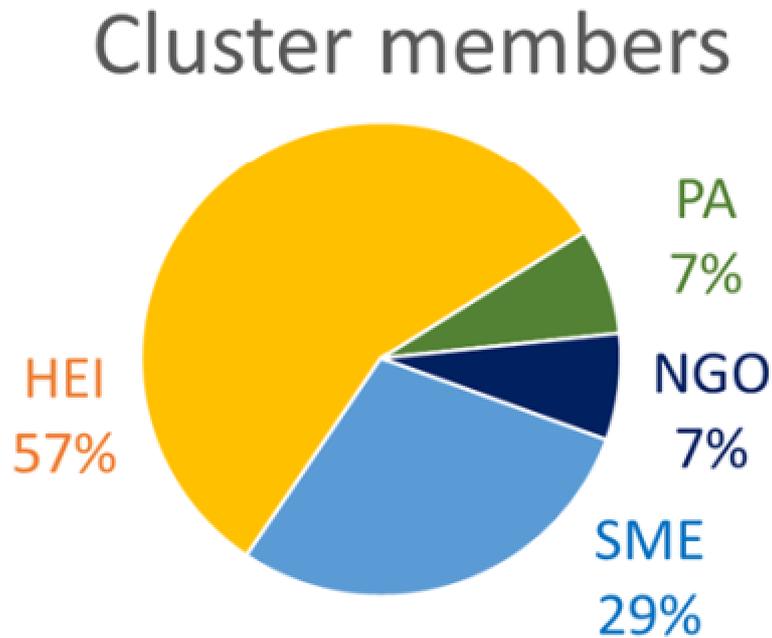


Fig.7 Relevance of different target groups in the URBAN AG cluster



Fig.8 Geographical spreading of URBAN AG cluster members

The following table provides the current list of all involved members.

Family name	Given Name	Affiliation	Country	Type
Allegrini	Giulia	Bologna University	Italy	HEI
Alsanius	Beatrix	SLU	Sweden	HEI
Aubry	Christine	INRA	France	HEI
Audubert	Philippe	FUL	France	SME
Baeza Romero	Esteban	Wageningen University	The Netherlands	HEI
Baudoin	Wilfried	FAO	Italy	PA
Bazzocchi	Giovanni	Horticity srl	Italy	HEI
Bechet	Beatrice	IFSTTAR	France	HEI
Bel	Nicolas	Topager	France	SME
Bertocchi	Inti	Bologna Municipality	Italy	PA
Biasi	Rita	Tuscia University	Italy	HEI
Blanusa	Tijana	University of Reading	UK	HEI
Bonoli	Alessandra	Bologna University	Italy	HEI
Braun	Juergen	Nuertingen Univ. Appl Sci.	Germany	HEI
Bretzel	Francesca	CNR	Italy	HEI
Caputo	Silvio	Portsmouth University	UK	HEI
Cavallo	Marino	Bologna Metropolitan Area	Italy	PA
Cirillo	Chiara	University of Naples	Italy	HEI
Cocchianella	Dino	Bologna Municipality	Italy	PA
Cox	Siemen	Rotterzwam	The Netherlands	SME
Crous	Joan	Eta Beta Coop	Italy	NGO
D'Arco	Matteo	Bologna University	Italy	HEI
D'Alessandro	Dario Alberto	Bologna University	Italy	HEI
De Barmon	Loïc	Les jardins de l'avenir	France	SME
De Leede	Huibert	Uit je eigen Stad	The Netherlands	SME
Delhommeau	Simon	AMAEVA	France	SME
Di Mauro	Salvatore Engel	New York State University	USA	HEI
Draghetti	Stefano	Biodiversity	Italy	NGO
Dubbeling	Marielle	RUAF	The Netherlands	NGO
Fernandez	Juan A.	Universidad Politecnica de Cartagena	Spain	HEI
Frappoli	Stefano	Poliflor srl	Italy	SME
Gabarrell	Xavier	Universidad Autonoma Barcelona	Spain	HEI
Gautier	Aurore	Vegepolys	France	SME
Geoffriau	Emmanuel	Agrocampus Ouest	France	HEI
Ghaffarian	Amirhosein	Ryerson University	Canada	HEI
Giacon	Anna	GrowthePlanet srl	Italy	SME
Gianquinto	Giorgio	Bologna University	Italy	HEI
Graamans	Ir Luuk	Delft Technological University	The Netherlands	HEI
Grard	Baptiste	INRA	France	HEI
Hoestra	Femke	RUAF	The Netherlands	NGO
Hursthouse	Andrew	University of Scotland	UK	HEI
Iori	Luana	Biodiversity	Italy	NGO
Jagtman	Pieter	Moestuyn Utrecht	The Netherlands	SME

Josa	Alejandro	Universidad Politecnica de Catalunya	Spain	HEI
Kahane	Remi	CIRAD	France	HEI
Kerhof	Friedrich	South Westphalia Univ. Appl Sci.	Germany	HEI
Lefebvre	Alexis	Le vivant et la ville	France	SME
Leguern	Cecile	BRGM	France	HEI
Leitao	Teresa	INEC	Portugal	HEI
Lorleberg	Wolf	South Westphalia Univ. Appl Sci.	Germany	HEI
Lundholm	Jeremy	Saint Mary's University	Canada	HEI
Magrefi	Francesca	STEPS srl	Italy	SME
Malagutti	Ilaria	MammutFilm srl	Italy	SME
Mellara	Michele	MammutFilm srl	Italy	SME
Mergenthaler	Marcus	South Westphalia Univ. Appl Sci.	Germany	HEI
Michelon	Nicola	Horticity srl	Italy	SME
Montero	Juan Ignacio	IRTA	Spain	HEI
Morgenstern	Rolf	South Westphalia Univ. Appl Sci.	Germany	HEI
Mulder	Marije	Zoete Land	The Netherlands	SME
Munoz	Pere	Sabadell Urban Parc	Spain	PA
Ochoa	Jesus	Universidad Politecnica de Cartagena	Spain	HEI
Orsini	Francesco	Bologna University	Italy	HEI
Paltrinieri	Roberta	Bologna University	Italy	HEI
Papafotiou	Maria	Athens University	Greece	HEI
Paulo	Luz	INIAV	Portugal	HEI
Pennisi	Giuseppina	Bologna University	Italy	HEI
Pijls	Hans	Food for Good	The Netherlands	SME
Poelling	Bernd	South Westphalia Univ. Appl Sci.	Germany	HEI
Quentin	Yma	UrbanFarmers	The Netherlands	SME
Renting	Henk	RUAF	The Netherlands	NGO
Rieradevall	Joan	Universidad Autonoma Barcelona	Spain	HEI
Romano	Daniela	Catania University	Italy	HEI
Rossi	Alessandro	MammutFilm srl	Italy	SME
Sanyé-Mengual	Esther	Bologna University	Italy	HEI
Scarda	Ricardo	InstitutoCidadeJardim	Brazil	SME
Specht	Kathrin	ZALF	Germany	HEI
Stacchini	Valeria	Bologna Metropolitan Area	Italy	PA
Stanghellini	Cecilia	Wageningen University	The Netherlands	HEI
Storzner	Axel	Hei-Tro	Germany	SME
Tsirogiannis	Ioannis L.	TEI of Epirus	Greece	HEI
Vermeulen	Tycho	De Haagse Stadswijngaard	The Netherlands	SME
Vidal	Laurent	Frais d'ici	France	SME
Weger	Kim	Nabolagshager	Norway	SME

## ***How to join the cluster***

To join the cluster, interested individuals need to send the following information at: [dipsa.rescue-ab@unibo.it](mailto:dipsa.rescue-ab@unibo.it)

Family name
Given Name
Affiliation
Country
e-mail
Institution type <i>Higher Education Institution (HEI), Public Authorities and representatives of public bodies (PA), Non-governmental and no-profit bodies (NGO) and private companies (SME).</i>
Short bio ( <i>max 500 characters</i> )
Motivations to join the cluster ( <i>max 500 characters</i> )

During the official launch of the cluster, at the final event of Urban Green Train project being held in Paris in July 2017, a coordinator and a management committee will be democratically elected from the meeting participants. Furthermore, at the first cluster meeting, occurring at the *International Symposium on “Greener Cities for More Efficient Ecosystem Services in a Climate Changing World”, Bologna, Italy, September 12-15, 2017*, the management committee will explain the main regulations for joining and being on the cluster and identify the main short- and medium-term objectives of the cluster.

Among the tasks of the management committee, is the one to evaluate individual applications (mainly based on previous experiences and motivations to join), for deciding upon their inclusion in the cluster.

## ***Major launching events***

RUAF organised the multiplier event in Almere, The Netherlands, on 30 March 2017 in collaboration with Aeres University of Applied Sciences in Almere. The event was organised back to back with the 6<sup>th</sup> URBAN GREEN TRAIN project meeting which enabled the attendance and participation of project partners in the event. Other participants included staff and students from Aeres and Wageningen University and several representatives of urban agriculture initiatives and SMEs in the Netherlands. Follow up for the integration of the URBAN GREEN TRAIN modules and resources in various educational programmes of Aeres is foreseen and appears promising. The programme and presentations as well as a photo report of the multiplier event are available on the RUAF website: <http://www.ruaf.org/news/education-urban-agriculture-and-urban-green-entrepreneurship>

In Germany two multiplier events could be realized. The first one took place on a farm in Waltrop next to Dortmund on May 16<sup>th</sup>, 2017. Around 70 participants covering a wide range of backgrounds and professions joint the event, which was organized in cooperation with the national project “CoProGrün” of RWTH Aachen University, Regional Association Ruhr, South-Westphalia University of Applied Sciences, Die Urbanisten, and Chamber of Agriculture North Rhine-Westphalia. Besides an overarching presentation of Urban Green Train, its results, and offers, the main focus of the multiplier event was on coproduction, participation, and social innovation in urban farming. Two days later, May 18<sup>th</sup>, the second multiplier event took place in Wuppertal with a stronger focus on Urban Green Train’s training resources, trainings offers, and training needs.

More than 30 participants joined the event, which was at the same time also a network meeting for high-tech innovations in urban agriculture, like aquaponics.

The national multiplier event in Italy took place in Bologna, on the 9<sup>th</sup> June 2017, at the Battirame farm (one of the Italian case study realized within the project [http://www.urbangreentrain.eu/en/?id=UA\\_Enterprises&category=415&product=1737](http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1737)). The event organised by the Department of Agricultural Sciences of the University of Bologna, as project coordinator in cooperation with Italian partners, gave the occasion to participants to explore different aspects of doing agriculture in town, together with experts from different disciplines, as well as policy makers, entrepreneurs, NGOs representatives and citizens. During the event the project main results and especially the curriculum and the cluster have been presented in details and discussed with participants together with future scenarios, also in link with other relevant ongoing projects and initiatives. See the event's programme at [http://www.urbangreentrain.eu/it/?id=News\\_Events&new=Pillole\\_di\\_innovazione](http://www.urbangreentrain.eu/it/?id=News_Events&new=Pillole_di_innovazione)

The final event of Urban Green Train was organized by VEGEPOLYS and AGREENIUM. It took place in Paris over two days on 10 and 11 July 2017. The aim was to highlight entrepreneurial initiatives illustrating the different types of economic approaches and models of urban agriculture in Europe, and the training modules created through the Urban Green Train project to stimulate entrepreneurship in urban agriculture. Emphasis was placed on skills and entrepreneurial paths related to the success of entrepreneurship in urban agriculture: French and European students and professionals were enabled to describe their own professional projects. Inter-stakeholder exchanges and the sharing of entrepreneurial experiences were encouraged. This conference was an opportunity to show the very recent professional structuring through the French association of professional urban agriculture, but also to promote the organization of French research and higher education on agriculture in the urban environment. See the program in English and French at <Http://www.vegepolys.eu/fr/agenda/3288-colloque-urban-green-train-sur-le-theme-entrepreneuriat-et-agriculture-urbaine.html><sup>8</sup>.

The day of July 11 was devoted to the visits of recent professional structures located in Paris: “Veni Verdi”, “Cultures en ville” on the site of the RATP and “La boîte à champignons”.

The first meeting of the cluster will take place at the *International Symposium on “Greener Cities for More Efficient Ecosystem Services in a Climate Changing World”*, Bologna, Italy, September 12-15, 2017 ([www.greencities2017.org](http://www.greencities2017.org)). The meeting will be on September 14<sup>th</sup>, 2017, and will include the following:

- 1) A presentation of the results of Urban Green Train results on educational resources;
- 2) A general presentation of the cluster;
- 3) A roundtable on the cluster aims and activities;
- 4) A registration desk for new participants willing to join.

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<sup>8</sup> Final conference presentations are available at [http://www.urbangreentrain.eu/en/?id=Pilot\\_Course&cat=25](http://www.urbangreentrain.eu/en/?id=Pilot_Course&cat=25).

# CONCLUSIONS & RECOMMENDATIONS

The URBAN GREEN TRAIN project succeeded in giving a significant overview of the relevant state of art on UA entrepreneurship, UA educational offer and UA training needs and provided an adequate basis for developing relevant training modules and educational resources supporting new entrepreneurship. Some of our key conclusions and recommendations from the project are related to:

## Different business realities

- It is important to **attune the training offer to different business realities**, not only in terms of underlying economic business models, but also in terms of starting point, types of actors and relevant networks;
- Income generated from traditional agricultural activities (primary production) are often of secondary importance, rather services and value added activities emerge as key component for the UA business strategy. Therefore, training should incorporate the **differentiated need for skills and knowledge** to implement a diversified range of activities.
- In view of this, the **training offer should be flexible, both in form and content**, to adequately address specific training needs and business realities.

## Target audience and learning needs

- Besides developing resources for students at Bachelor or Master level also consider training needs and interests of **professionals, side-entrants or policy makers**.
- There is a need for **integrated and multi-/interdisciplinary training support** for new urban agriculture initiatives or as described by a Dutch SME: *“UA is often small-scale and versatile, but current education is large-scale and specialised”*.
- Our training needs analysis confirms the interest in **practice-oriented forms of education**, such as lifelong learning and blended forms of non-formal and formal education.
- To bridge the world of education and that of work, it is essential to ground your offer to a **clear competence framework**.
- Also, there is a need for **co-creation of knowledge** between trainers, participants and actors involved in projects.

## Online course structure

- Provide a clear **online structure and agenda**.
- Open a course for at least 10-12 weeks and schedule **intermediate deadlines and milestones** to be timely reached by students to keep momentum and sustain commitment.
- Consider creating a **place for FAQ/ technical issues** and a place for sharing general resources.
- Have students **peer-review** each other's assignments. This peer-reviewing can be part of the requirements to finish the course and receive a certificate.
- **Tutors** provide additional feedback and guidance.
- Use a **mix of resources**, assignments, quizzes, forums, online reading and short audio / video fragments to make it more appealing.

## Face to face / blended course teaching

- The training should aim for a **mixture of face to face course teaching and learning methods**, including lessons, group work, short presentations of participants (pitches/competitions) and excursions.
- Blended forms of training (combining practical and distance learning) **enhances the online learning experience**.
- **Social events** for team building purposes and to motivate participants should not be underestimated.
- Spend adequate time on introducing the course; **refer to online modules** in the first classes, but make sure not to repeat too much.
- **Field visits** provide great illustrations for types of UA businesses and encourage learning from a more practical angle.
- **Involve entrepreneurs** also in the teaching, having them to introduce their business and describe opportunities and main experienced difficulties in UA activities.
- Also **focus on “social” aspects of UA** and topics such as community development instead of solely on its “commercial” aspect. Too much emphasis on only the economics fails to involve people like potential practitioners and customers.
- Emphasize the **importance of networking** i.e. creating more synergy among projects in their respective countries – in the North and South.

### **Recognition of credits and integration in course curriculum**

When applying for ECTS recognition several elements are set by the local institutions internal regulations. The following elements should be kept in mind:

- **Check the number of hours** associated with educational credits in the national and institutional environment.
- **Keep track of all actions taken to adapt the course to the real training needs**, to demonstrate to the own institute the potential of the course to satisfy real student needs.
- Consider including a **test phase**, where the validity and feasibility of the course is assessed in a real environment. After the test phase collect feedbacks and re-adjust the course structure. Keep track of the adjustments to show how the course will be feasible and acceptable for potential participants.

To make your educational offer available to different types of learners, **recognition of credits should go in parallel with recognition of competences**.

- Describe your modules in terms of learning outcomes with a clear identification of the competences acquired by participants.

### **Collaborative curriculum development**

The **collaborative experience** of URBAN GREEN TRAIN enabled to integrate state of the art multidisciplinary educational resources, also leading to comparative analysis of business models adapted to varied international environments. This represents a key result of the project, with an educational curriculum that differs from all existing offer since it gives a clear and comprehensive overview of the sector and its potentials.

The **strong involvement of entrepreneurs** in the definition of the educational needs and their contribution in the development of the curriculum has led to the creation of educational materials that fill existing gaps of the sector. To follow this track, the following actions must be taken:

- Collect a comprehensive needs analysis for training and research in the sector;
- Involve entrepreneurs as students in the pilot course test;
- Involve entrepreneurs in the preparation of the educational material.



The logo consists of three stacked words: 'URBAN' in orange, 'GREEN' in green, and 'TRAIN' in red. Each word has a small icon integrated into its first letter: a building for 'U', a leaf for 'G', and a graduation cap for 'T'.

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