





T4.3.2 Soft Skills Library – Critical Thinking Course

ORANGE: CREATIVITY, INNOVATION & TECHNOLOGY PROJECT

Erasmus+ Programme 2014-2020

KNOWLEDGE ALLIANCE 2018







Summary table

WP4. Innovative toolkit					
T4.3. Compilation of good practices and creation of new training					
modules until a total amount of 6 validating the process with					
different cultural elements, processes or business models.					
R4.2. TRAINING MODULES					
T4.3.2_Soft Skills Library_ IV.2 Critical Thinking					
This document presents Critical Thinking, which is part of					
Module 4. Soft skills. The aim of the course is that the teacher					
acquires competences about how to develop and promote					
creativity, and also to provide him/her with materials and					
guidance to transmit this knowledge to their students in the					
classroom. Following the lessons proposed in this course, the					
students will understand the critical thinking process and					
enhance their creativity soft skills.					
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This document is the 3º version of the previous: Course IV.2					
Critical Thinking.					
5/12/2021					
1. IICDS: preparation of the document (initial)					
2. MEUS/UPV: Revision of the Document					
3. IICDS: Actualization of Rubrics					
4: IICDS: Actualization of the document					
Revision of the course content by partners					
Uploading in LMS					

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Module IV Soft-skills Course IV.2 Critical Thinking

Chapter 1. Introduction

The purpose of the O-City project is to discover and promote the natural and cultural heritage of our cities, and, at the same time, to stimulate the orange economy by injecting technical and professional knowledge into the natural and cultural promotion of the cities involved. On the one hand, the promotion of the natural and cultural heritage of the cities will be achieved by creating creative multimedia items (photo, video, comic, animation, podcast, ...) of each city and upload them into the O-City World platform. On the other hand, to develop the creative economy of the cities, different courses have been developed for teachers about the creative multimedia items that will be located on the O-City platform. These courses include resources about how to put into practice the contents with their students. In this way, teachers and students will create new creative multimedia items of their cities that, after being validated, will be uploaded to the O-City World platform.

Additionally, the development of cultural, soft and business skills is also necessary for new practitioners in the orange economy. For this reason, the O-City training plan consists of the following 4 skill modules:

- 1. Module I. Heritage & Intellectual Property (IP): Basic content related to natural and cultural heritage (definition, classification, importance, etc.) and the protection of intellectual property (definition, categories, methods, etc.)
- 2. Module II. Technical: Basic content needed to develop multimedia elements (photography, video, animation, etc.) on heritage.
- 3. Module III. Business: Basic contents related to business and entrepreneurship skills in the orange economy (creation of business models, digital marketing, etc.)
- 4. Module IV. Soft skills: Contents to stimulate creativity, critical thinking and in general interpersonal skills as a tool to improve professional integration.

This document presents the Critical Thinking course, which is part of Module III. The aim of the course is for the teacher to acquire theoretical foundations and competencies on how to create a brand and all its basic components, as well as to provide him / her with materials and guidelines for transferring this knowledge to his / her students in the classroom. After the lessons suggested in this course, students will apply creativity to their cities' natural or cultural heritage.



The main topics of this course are Brand basics, Brand Identity, Strategic brand management, Brand Equity, The New Media Environment, Measuring and Interpreting Brand Performance. With this, students will develop a brand of cultural heritage in their city, providing us brand elements experience that guarantees its knowledge and subsequent conservation. Finally, the teacher will upload the multimedia produced in his/her classroom to the O-City World platform if they have the required quality. The course is available in an open format in:

https://poliformat.upv.es/portal/site/OCW_CUR1157407_2020/tool/33a9e211-abad-49ca-aade-17c88e1ac3ec

This document is structured as follows. Chapter 2 details the learning objectives of the course. Chapter 3 describes the three types of learning materials developed: T2L-Teacher to learn, T2T-Teacher to teach and S2P- Student to practice. Chapter 4 reports the innovative learning methodologies that are used in the proposed course (project-based learning and blended learning) and the ones that teachers can decide to use (flip-teaching and gamification). Chapter 5 is dedicated to giving the contents of the course, which is divided into three topics, each one consisting of four lessons. For each lesson, all the materials (T2T, T2L and S2P) are linked and recommendations about how to plan the lessons are given. Chapter 6 includes links to some useful tools related to the soft skills learned during the course. Chapter 7 is dedicated to evaluation/assessment: teachers will be evaluated through tests about the materials T2T. Chapter 8 define the pathway to acquiring competences by identifying the DIGCOMP (Ferrari, 2013) and ENTRECOMP (Bacigalupo, Kampylis, Punie, & Van den Brande, 2016) framework competencies that the students will work with each one of the proposed activities of digital marketing content course. Finally, in Chapter 9 teachers can find more learning materials from other O-City modules. Teachers can decide which resources are more suitable or useful for their classroom depending on their teaching reality (educational level, subject, ...). In this way, teachers will adapt the learning path of their students focusing on technical, culture, intellectual property, business and/or soft skills.

Chapter 2. Learning Objectives

The general objective of O-City project is to provide a series of virtual tools that allow teachers to be trained in multimedia issues, granting technical as well as artistic knowledge to obtain an audiovisual product that is consistent with the project requirements. The final objective is that teachers transmit all this knowledge in the classroom so that their students generate audio-visual products that feed the O-City World platform.

After taking the "Critical Thinking Course" the teacher (and his/her students when the course is brought to the classroom will be able to:

- Understand the importance and benefits of critical thinking when you want to solve a problem
- 2. Experiment with some tools to define a good problem statement to guide the critical thinking process
- 3. Explore the principal tools that impact the quality of this process of thought.
- 4. Define the characteristics of a good critical thinker
- 5. Identify the obstacles in the critical thinking process



Chapter 3. Types of educational materials

One of the purposes of O-City is that teachers use our training program, not only to learn, but also to incorporate the O-City project into their daily academic activities in the classroom, where their students will create multimedia based on photos. In this sense, teachers will choose which contents of the Critical Thinking course (and other related courses: culture, IP, business and soft skills) are useful for them depending of their previous training; and which contents to take to their classroom, depending on the type of subject or level of their students.

In general, the educational materials developed are classified into three types

Teacher to learn (T2L): contents (videos, ppts, pdfs, ...) to provide teachers with a basic technical knowledge applied to cultural and natural heritage. Teachers will transmit this knowledge to their students (they can use the same contents in the classroom).

Teacher to teach (T2T): contents (videos, ppts, pdfs, ...) and activities prepared for teachers to use in the classroom. These activities are prepared to be directly developed by the teacher in the classroom and they can be adapted to the subject and to the educational level. The T2T activities are the ones recommended to get that students create the multimedia based on photos.

Student to practice (S2P): optional extra activities prepared for students to go deep into some topic. Teachers will decide if they propose some S2P activity or not.

Chapter 4. Innovative learning methodologies

This chapter is dedicated to explaining the innovative learning methodologies that are or can be used in the Critical Thinking course when the teacher takes the course to the classroom.

Case Study

The case study is an interactive method based directly on the pedagogical process. The case study started in 30 years at Harvard Business School. Examples of study are based on real or fictional situations (problems) in practice that need to be solved independently or in a group. In the case study, participants have to deal with a particularly problematic situation. Students put themselves in the role of leader and, with a proposal, try to solve a particular problem. Common to all case studies is that participants give a positive experience that they can use later in practice.

Project Based Learning

The objective of this course is that students develop a specific project working in teams to develop some of the activities that we propose. Additionally, working in teams through the project encourage collaborative learning: responsible and team autonomous work, increased respect and tolerance, personal growth, improvement of communication skills, internalization of academic knowledge, greater control of the student in the learning process, teamwork, interest, and motivation, improvement of self-esteem, development of intellectual and professional skills and efficient use of resources.



Flip-teaching (optional)

Most of the materials prepared for teachers (T2L) can be used by students (T2T). Teachers can propose students to work on these materials at home before the class. In this way, the time in the class can be used to answer queries about the work made at home or to go deeper into the topic. This methodology promotes students' active involvement. Moreover, it offers a chance to focus class time on the higher forms of cognitive work (application, analysis, synthesis, and evaluation). As described by Bloom's revised taxonomy, by engaging students in complex tasks with the support of the teacher and the involvement of the group of peers. Chapter 5 specifies the activities that can be proposed using this methodology. More information about this methodology can be found in (Bergmann & Sams, 2012).

Blended learning

This course combines online educational materials (such as T2T videos described in Chapter 5) and traditional place-based classroom methods. Face-to-face classroom practices are combined with computer-mediated activities that students are assigned to do at home (some T2L activities described in Chapter 5). This methodology allows students to work on their own with newconcepts, while teachers can support individually students who need special or customized attention.

Gamification (optional)

Teachers can introduce gamification in the course to increase participants' engagement. Students can get points by doing the proposed activities in Chapter 5 (T2L and S2P). The teacher assigns points to each team (or to each student if the teacher considers necessary that some task is done individually) after assessing each activity and makes the ranking visible. At the end of the course, teacher assigns points to each multimedia created and students assign points to the multimedia created by their peers.



Chapter 5. Contents of the course

At the beginning of the course we show a video that introduces the two main topics, "Critical Thinking" and "Practice Critical Thinking", to have a general overview of the course structure.

Furthermore, some of the cultural heritages that are part of the O-City platform are presented as inspiration for the activities that will be carried out during the lessons.

The first is divided into four lessons, the second with a unique lesson:

TOPIC	LESSON
	L1. What is critical thinking?
	L2. Defining the problem statement
T1. Critical thinking	L3. Critical thinking tools
	L4. Obstacles in the critical thinking process
T2. Practice Critical Thinking	L1. Teaching how to think critically

Table 1. Structure of the course in topics and lessons

Critical thinking is an ability that helps thinking reflectively to make good decision for a given problem. It helps in finding the root-cause of a problem and that avoid future problems that are the consequences from our recommendations.

The course is divided into two topics.

The first topic outlines a series of tools or techniques that help enhancing critical thinking skills. It teaches how to define a problem statement of the issue that you want to solve and gives tools for looking for the causes, identifying consequences an focus in the relevant drivers of the problem

In the second topic, the lesson guides in how to develop the critical thinking skills in a team or into the classroom

In the following sections, each topic and its lessons will be indicated in detail.

Topic 1. "Critical Thinking"

This topic will take a preliminary look at what critical thinking is, how to define a clear problem statement, which tools use for identifying causes and effects of the problem or recommendation and be prepared to avoid obstacles that could appear in the process.

In this topic you will learn:

- 1. What is critical thinking?
- 2. Defining a problem statement



- 3. Critical Thinking tools
- 4. Obstacles in the critical thinking

Lesson 1: What is critical Thinking

Sometimes, when you think you have solved a problem, you realize that, in the end, you have created a bigger one. Or perhaps, you discover, in the end, that you only cured a symptom and you didn't fix the root cause. The reason these things happen is that you are not thinking critically.

Critical thinking is both a mindset and, therefore, the application of some fundamental, simple tools. These critical thinking skills are invaluable.

The objectives of this lesson are the following:

- Understand the concept of critical thinking.
- Define the benefits of critical thinking.
- Distinguish between causes and consequences in the process of thinking critically
- Explore breaking problems into small ones as a method achieve better solutions

Lesson 2: Defining a problem statement

Sometimes, when you think you have solved a problem, you realize that, in the end, you have created a bigger one. Or perhaps, you discover, in the end, that you only cured a symptom and you didn't fix the root cause. The reason these things happen is that you are not thinking critically.

Critical thinking is both a mindset and, therefore, the application of some fundamental, simple tools. These critical thinking skills are invaluable.

The objectives in this lesson are the following:

- Understand the concept of critical thinking.
- Define the benefits of critical thinking.
- Distinguish between causes and consequences in the process of thinking critically.
- Explore breaking problems into small ones as a method achieve better solutions.

Lesson 3: Critical thinking tools

In this lesson, we will learn practical tools to critically identify root causes and consequences and learn how to prioritize and save energy while solving a problem.

The process of asking why help find the true cause of the problem. Thinking about consequences will help discover new opportunities and avoid downstream problems that could cause negative impacts. And Pareto rule could help prioritize the most relevant actions having a limited time to act.

The objectives in this lesson are the following:



- To understand and learn how to use three tools for critical thinking:
 - Asking "Five whys" for identifying root causes
 - Answering "seven so-whats" for avoiding downstream problems
 - The 80/20 Pareto rule for prioritizing actions
- Make implications aware for the critical thinker.

Lesson 4: Creative Hurdles

In the process of looking for more and better answers some difficulties could be produced by:

- Rushing to get an answer too quickly.
- Don't wanting to expand the problem space.
- Focusing on the unimportant
- Not thinking about the consequences

All of them, could be minimized by using the Critical thinking tools described in the previous chapter

The objectives in this lesson are the following:

- Understand the obstacles in the critical thinking process.
- Identify the most common pitfalls.
- Encourage the use of critical thinking tools in the process of looking for answers of common issues.

Tables 2 describes the materials provided to the teacher for each lesson. Each lesson corresponds to one class of the teacher with his/her students. The materials (videos and pills) prepared for the teacher to learn (T2L) can also be used directly in the classroom (teacher to teach - T2T), or a task for the students can be assigned, which consists on watching the videos at home before the class (in green colour in the tables). The latter option is known as flipteaching, in which the time in class is used to solve doubts and go further into the project. Videos explain the theoretical concepts of a lesson, whereas pills show practical examples of these theoretical concepts to help in the understanding. The objective of this course is that the students, guided for a teacher understand the concept of Creativity and the creative process. To achieve this goal activities are following the lessons (T2T- in blue colour) and it is detailed if the students need to work in the classroom or at home. Extra activities (S2P - in salmon colour) are proposed for those teachers who want to go deeper into the topic of the lesson. All the prepared materials (lesson content in pdf, videos, video contents in pdf and activity factsheets in pdf) are linked in the tables. Students should deliver all the proposed activities before the following lesson, when the teacher will solve their doubts (if students do not do/deliver the activity, they won't have doubts). After solving their doubts, students should correct their activities and deliver them again to the teacher.

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Lesson	Туре	Materials	Description	Student workload	Where the student work?	What to do in class
	T2L/T2T	Video T1.L1. What is critical thinking (lesson content pdf, video, video content in pdf)	Introduces what critical thinking is and how to frame a problem by defining causes and consequences	20'	at home (previous to the lesson - flip- teaching) or in the classroom	Explain the importance of cultural heritage in the world. Present O- city World platform,
1 What is Critical	T2L/T2T Understanding Pro/consTool (Activity factsheet)		To learn about the main characteristics of the pro/cons tool and when to use it.	l 2h l		Prepare tools T2T.01,
thinking	T2L/T2T	Pill. See an inspirational Video about using photography to reconstruct digital heritage	See the TED talk video "How your pictures can reclaim lost history" to understand one possibility to solve the problem of preserving heritage through crowdsourcing photographs from tourists	½ h	at the classroom	T2T.02 to use in class Develop S2P.01 at home
	S2P	Ideas to improve the preservation of heritage	Search for examples where orange economy products are used to help enhance consciousness of cultural heritage to preserve the history	1 h	At home	

Table 2. Materials provided for Lesson 1. What is critical thinking of Topic 1. Critical thinking





Lesson	Туре	Materials	Description	Student workload	Where the student work?	What to do in class
2 defining the problem	T2L/T2T	Video T1.L2. defining the problem statement (video, video content in pdf, lesson content in pdf)	Defining the problem statement helps frame the issue to assure we are facing the root of the problem and not answering a symptom	20'	at home (previous to the lesson - flip- teaching) or in the classroom	Explain the importance of the cultural heritage in the world. Present Ocity World platform,
statement	T2L/T2T	Pill. See an inspirational Video about preserving monuments by 3d	See the TEDtalk video "Ancient wonders captured in 3D" to understand one possibility to solve the problem of preserving heritage through multimedia solutions	½ h	at the classroom	Prepare tools T2T.01, T2T.02 to use in class. Develop S2P.01 at home
	T2L/T2T	IV.3.L2 T2T.01. Understanding Case study to define a statement (<u>Activity factshee</u> t)	To define a problem statement from a case study	2 h	at the classroom	

Table 3. Materials provided for Lesson 2. Define the problem statement of Topic 1. Critical thinking





Lesson	Туре	Materials	Description	Student workload	Where the student work?	What to do in class
	T2L/T2T	Video T1.L3. Critical Thinking tools (<u>Video</u> , <u>Video content in pdf</u> , lesson content in pdf)	Explore the critical thinking tools to find causes, identify consequences and prioritise actions	20'	at home (flip- teaching) or in the classroom	Explain the importance of the cultural heritage in the
3 critical thinking tools	T2T IV.3.L3 T2T.01. Activity: use of 5 whys tool (Activity factsheet)	Use the 5 whys tool to find the root cause of a problem	1½ h.	In the classroom	world. Present O-city World platform, Prepare tools T2T.01,	
	Т2Т	IV.3.L3 T2T.02. Activity: use of 7 so-whats (<u>Activity factsheet</u>)	Use the 7 so-whats to identify the consequences of a recommendation	1½ h.	In the classroom	T2T.02, to use in class
	Т2Т	IV.3.L3 T2T.03. Activity: use of Pareto 80/20 tool (<u>Activity factsheet</u>)	Use the Pareto 80/20 tool to focus on the mostrelevant activities to save time and energy	1½ h.	In the classroom	

Table 4. Materials provided for Lesson 3. Critical thinking tools of Topic 1. Creative thinking





Lesson	Туре	Materials	Description	Student workload	Where the student work?	What to do in class
4 obstacles in the Critical thinking process	T2L/T2T	Video T1.L4. Obstacles in the critical thinking process (video, video content in pdf, lesson content in pdf)	Identity the obstacles for the attactive	20'	at home (flip- teaching) or in the classroom	Explain the importance of the cultural heritage in the world. Present O-city World platform,

Table 5. Materials provided for Lesson 4. Creative Hurdles of Topic 1. Creative thinking



Topic 2. Practice Critical Thinking

We might say that the creative process is the art of generating ideas or could be the path to solve a problem. Bust the creative process is more than that. We use parts of the creative process every time we come up with an idea or research solutions for a problem, or choose a direction.

The creative process isn't just "generating ideas". The reality is it is a several step process, and ideation is only one of those steps. The entire creative process is made up of objective finding, data gathering, problem design, ideation, and selection. Understanding the role of each step enables us to ensure that we generate the most effective solutions. We could be using the entire creative process to make those ideas, solutions, and directions stronger.

Play provides the game atmosphere by providing the one aspect to creative problem solving that can't be emulated any other way. A Play has no real pressure, no one would get a bad grade, lose their job, or lose their client if you failed. This simple fact allowed you to take risks you may not otherwise take. This is the fundamental effect of engaging in play, marginalized consequence because nothing was on the line, you were free to take chances and learning to risk is a seminal part of creative problem-solving.

In this topic, we are going to explore playing as a strong tool to enhance the creative process.

Lesson 1: Teaching how to think critically.

In this lesson, we will analyse if critical thinkers have innate abilities that make them think better critically.

You can teach how to think critically by teaching the tools, creating opportunities to practice, coach students in their learning process, and creating the spaces to apply these methods systematically.

The objectives in this lesson are the following:

- Identify traits for the critical thinkers
- Encouraging applying critical thinking to problems regularly
- Define the process of critical thinking





Lesson	Туре	Materials	Description	Student workload	Where the student work?	What to do in class
	T2L/T2T	Video T1.L5. The role of playing increative thinking (video, video content in pdf, lesson content in pdf)	Explore the play as a mean of enhancing the creative process without hurdles	20'	at home (flip- teaching) or in the classroom	Explain the importance of the cultural heritage in the world. Present O-city World
1 Teaching how to think critically	T2L/T2T	Pill. See an inspirational Video about preserving monuments by 3d		½ h	at the classroom Prepare tool	platform,
	Т2Т	IV.3.L5 T2T.01. practice critical thinking (<u>Activity factsheet</u>)	The practice of solving a cultural heritageproblem through the whole critical thinking process	3 h	at home	Develop S2P.01 in class

Table 6. Materials provided for Lesson 5. Teaching how to think critically of Topic 2. Practice critical thinking



Chapter 6. Useful tools

This chapter incorporates complementing resources and recommended tools for the two topics of this course:

a. The foundation for critical thinking: https://www.criticalthinking.org/pages/defining-critical-thinking/766

b. TeD Talks: https://www.ted.com/

c. Ted-ED videos: https://www.ted.com/watch/ted-ed

Chapter 7. Evaluation

This chapter is divided into two sections, the evaluation of the teacher and the evaluation of his/her students.

Teacher evaluation to obtain the Europass certificate

The Critical Thinking course is available in open format in this <u>link</u> so teachers have all the resources to implement the project in their classroom.

If teachers are interested in obtaining a certificate, they need to register for one of the editions of the course offered by CFP UPV (Postgraduate Formation Center of Universitat Politècnica de València http://www.cfp.upv.es/), which will be announced on our web.

Teachers will be evaluated through tests, which ensure that the contents (T2L) have been assimilated correctly. In this way, teachers can demonstrate the correct understanding of the module materials and obtain the Europass certificate.



Chapter 8. Pathway to acquire competences

In this chapter, the pathway in the Critical Thinking course to acquire competences is defined. As concluded in WP5, we are working with DIGCOMP (Ferrari, 2013) and ENTRECOMP (Bacigalupo, Kampylis, Punie, & Van den Brande, 2016) competences.

DIGCOMP Competencies

In this section, we identify the DIGCOMP competencies that students will work on within each one of the proposed activities of the Critical Thinking content course. The proposed activities will helpstudents to develop these competences through 3 proficiency levels: A (foundation), B (intermediate) and C (advanced). The list of indicators for the development of digital competences is included in Tables A.I.1 and A.I.2, and the list of learning outcome descriptorsfor each competence and level of proficiency (Tables A.I.3-A.II.5). Using the learning output descriptors of the digital competences, the proficiency level that students can develop by doing the proposed activities has been identified. Table 17 details this information for topics 1 and 2 of this course, respectively. For each lesson, activities (T2T) are represented in blue colour and extra activities (S2P) are represented in salmon colour (see the description of the activities in Chapter 5).

ENTRECOMP Competencies

In this section, we identify the ENTRECOMP competencies that students will work on within each one of the proposed activities of the Critical Thinking course. The proposed activities will help students to develop these competences through 3 proficiency levels: A (foundation), B (intermediate) and C (advanced). These proficiency levels are summarized in Annex II (Table A.II.1). ENTRECOMP does not offer a list of indicators for the development of entrepreneurial competences, but a detailed list of learning outcome descriptors for each competence and level of proficiency (Tables A.II.2-A.II.16). Using these lists of learning outcome descriptors, the proficiency level that students can develop by doing the proposed activities has been identified. Table 18 details this information for topics 1 and 2 which are the ones in which have T2T and S2P activities, respectively. For each lesson, activities (T2T) are represented in blue colour and extra activities (S2P) are represented in salmon colour (see the description of the activities in Chapter 5

		Tania 1	Tania 1	Tania 1	Tania 1	Tau: - 1	Tan: - 1	Tausia 1	Tania 1	Tania 1	Tania 1
		Topic 1 Lesson									
		1	1	2	2	2	3	3	3	4	4
		EA									
		T1.L1.1	T1.L1.1	T1.L2.1	T1.L2.1	T1.L2.2	T1.L3.2	T1.L3.2	T1.L3.2	T1.L4.2	T1.L4.2
	1.1 Browsing, searching and filtering data,	11.61.1	11.61.1	11.L2.1	11.L2.1	11.L2.2	11.L3.2	11.L3.2	11.L3.2	11.14.2	11.14.2
	information and digital content	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α
INFORMATION	1.2 Evaluating data, information and digital	,,	,,	,,	7,	,,	,,	,,	,,	,,	7.
AND DATA LITERACY	content										
LITERACI	1.3 Managing data, information and digital										
	content										
	2.1 Interacting through digital technologies	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α
CONANALINICA	2.2 Sharing through digital technologies	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α
COMMUNICA TION AND	2.3 Engaging in citizenship through digital										
COLLABORATI	technologies										
ON	2.4 Collaborating through digital technologies										
	2.5 Netiquette										
	2.6 Managing digital identity										
	3.1 Developing digital content										
DIGITAL CONTENT	3.2 Integrating and re-elaborating digital content										
CREATION	3.3 Copyright and licences										
	3.4 Programming										
	4.1 Protecting devices										
CA5577/	4.2 Protecting personal data and privacy										
SAFETY	4.3 Protecting health and well-being										
	4.4 Protecting the environment										
	5.1 Solving technical problems										
22 22 51 4	5.2 Identifying needs and technological										
PROBLEM	responses										
SOLVING	5.3 Creatively using digital technologies										
	5.4 Identifying digital competence gaps										

Table 17. DIGICOMP competences developed with the activities proposed in Topic 1 and 2.

		Topic 1									
		Lesson									
		1	1	2	2	2	3	3	3	4	4
		EA									
		T1.L1.1	T1.L1.1	T1.L2.1	T1.L2.1	T1.L2.2	T1.L3.2	T1.L3.2	T1.L3.2	T1.L4.2	T1.L4.2
	1.1 Spotting opportunities										
	1.2 Creativity	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α
IDEAS AND	1.3 Vision										
OPPORTUNITIES	1.4 Valuing ideas	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α
	1.5 Ethical and sustainable thinking										
	2.1 Self- awareness and self- efficacy										
	2.2 Motivation and perseverance	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α
RESOURCES	2.3 Mobilizing resources										
	2.4 Financial and economic literacy										
	2.5. Mobilizing others										
	3.1 Taking the initiative	Α	А	А	Α	Α	Α	А	Α	А	Α
	3.2 Planning and management										
INTO ACTION	3.3 Coping with uncertainty, ambiguity and risk										
	3.4 Working with others										
	3.5. Learning through experience	Α	Α	Α	Α	Α	Α	А	А	А	Α

Table 18. ENTRECOMP competences developed with the activities proposed in Topic 1 and 2.

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5.1 Solving technical problems	SAFETY	4.3 Protecting health and well-being		
		4.4 Protecting the environment		
5.2 Identifying needs and technological		5.1 Solving technical problems		
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PROBLEM responses		responses		
SOLVING 5.3 Creatively using digital technologies	SOLVING	5.3 Creatively using digital technologies		
5.4 Identifying digital competence gaps		5.4 Identifying digital competence gaps		

Table 17. DIGICOMP competences developed with the activities proposed in Topic 1 and 2.

		Topic 2 Lesson 1 EA T2L1.1	Topic 2 Lesson 1 EA T2.L1.1
	1.1 Spotting opportunities	1211.1	12.L1.1
	1.2 Creativity	А	А
IDEAS AND	1.3 Vision		
OPPORTUNITIES	1.4 Valuing ideas	Α	Α
	1.5 Ethical and sustainable thinking		
	2.1 Self- awareness and self- efficacy		
	2.2 Motivation and perseverance	Α	Α
RESOURCES	2.3 Mobilizing resources		
	2.4 Financial and economic literacy		
	2.5. Mobilizing others		
	3.1 Taking the initiative	А	Α
	3.2 Planning and management		
INTO ACTION	3.3 Coping with uncertainty, ambiguity and risk		
	3.4 Working with others		
	3.5. Learning through experience	Α	Α

Table 18. ENTRECOMP competences developed with the activities proposed in Topic 1 and

Chapter 9. Other training related to Creativity

In this chapter, teachers can find more learning materials from other O-City modules with activities related to creativity. Teachers will decide which resources to take to their classroom depending on their teaching reality. In this way, teachers will adapt the learning path of their students focusing on technical, culture, intellectual property, business and/or soft skills.

Module I. Heritage & Intellectual Property

In this section teachers will find learning and teaching resources about basic contents related to heritage and intellectual property. This module is divided into two courses, which can be opened using their link:

- I.1. Heritage
- I.2. Intellectual Property

Module II: Technical

In this section teachers will find learning and teaching resources about basic contents related to technical competences. This module is divided into six courses, which can be opened using their link:

- II.1. Photo -video Concept
- II.2. Video
- II.3. Animation
- II.4. Comic
- II.5. Podcast
- II.6 Infographic

Module III. Business

In this section teachers will find learning and teaching resources about basic contents related to business and entrepreneurship skills. The module is divided into 6 courses, which can be opened using their link:

- III.1. <u>Business models</u>
- III.2. <u>Digital marketing</u>
- III.3. Branding
- III.4. Entrepreneurial finances
- III.5. Testing business ideas
- III.6. Pitch

Module IV. Soft Skills

In this tysection teachers will find learning and teaching resources to stimulate creativity, critical thinking and interpersonal skills as a tool to improve professional integration. These are the three courses of the module, which can be opened using their link:

- IV.1. <u>Interpersonal skills</u>
- IV.2. <u>Developing Creativity</u>
- IV.3. Critical Thinking

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Mumaw, S. (2020) Creativity. Generate Ideas in Greater Quantity and Quality. LinkedIn Learning.

Seelig, T. (2017) Creativity Rules. Get Ideas Out of your head and into the world. HarperOne Eds.

Annex I. DIGCOMP: framework to develop and understand digital competences

DIGCOMP (Ferrari, 2013) defines a list of 5 competence areas (Dimension 1: Information, communication, content creation, safety and problem solving), each one with several competences as a framework for developing and understanding digital competences in Europe. DIGCOMP provide us with indicators for the development of digital competence, shown in Tables A.I.1 and A.I.2., with three proficiency levels: A (foundation level), B (intermediate level) and C (advanced level). Moreover, DIGCOMP also describes learning outcome descriptors for each competence, which are collected in Tables A.I.3, A.I.4 and A.I.5.

	Getting to A	Moving from A to B	Moving from B to C
Information	 Understanding what a search engine is Finding out how to do searches with simple words Understanding how to save content and information Understanding which information is covered by Copyright Understanding that how to trust online information 	 Finding out about and using effective search methods. Finding out how to judge information and using these strategies. Finding out how to maintain files and content regularly and implementing practices. Understanding terms as copyright, copy left and creative commons. 	 Finding out about and trying a wider range of search techniques and strategies. Finding out about how to cross-check and filter information and using these strategies. Finding out about and trying a wider range of methods and tools to organise information. Understanding about different types of licences and how to apply them.
Communication	 Finding out about different digital communication channels Understanding how to use a few communication tools Becoming aware of basic principles for communicating through digital means Becoming aware of how to use technologies for cooperating with others 	 Finding out about and trying more ways to communicate with others. Finding out about and regularly using ways to shares files and content with others. Ensuring that cooperative tools are used as regularly as possible and seeing opportunities when needs arise. Finding out about online services Finding out about netiquette 	 Finding out and trying a wide range of communication tools and devices. Finding out about and trying these in the context of their match to needs and purpose. Finding out about a wide range of information sharing devices and tools, and identifying which of these tools and devices best matches different needs and purposes. Becoming engaged in civic online participation Understand cultural differences
Content- creation	 Finding out about different tools, software and packages to produce content Understanding how to use some simple tools Understanding how to modify content 	 Finding out about and using different ways that ICT can produce content. Become familiar with multimedia tools Understanding how to apply licences to the content one has produced Finding out about tools that support creating new programmes or applications 	 Selecting ways to produce content that are not so familiar and using these in contexts appropriate to needs and purpose. Finding out about and using ways to edit and refine content. Finding out about and using expert ways of combining existing content such as mash-up. Becoming familiar with different types of licences. Learning how to code and programme.

Table A.I.1. Indicators for the development of digital competence: Information, Communication, Content Creation.

	Getting to A	Moving from A to B	Moving from B to C
Safety	 Finding out simple means of protections (passwords, anti-viruses, avoid sharing information) Understanding how to protect self from addiction or cyber bullying 	 Finding details of the information that should not be shared online, and having opportunities to put this into practice. Finding out about and using a range of tools to protect digital devices. Finding out about the impact of technologies on the environment 	 Finding out about and using a wide range of protection strategies and how these apply to online identities. Knowing how to change online security and privacy settings, and monitoring and adjusting these regularly as needed, checking them against expert practice. Having access to expert sources that detail the different privacy issues, and how to address these in practice. Finding out about the impact of technologies on society
Problem-solving	 Finding out simple means of protections (passwords, anti-viruses, avoid sharing information) Understanding how to protect self from addiction or cyber bullying 	 Having access to sources or centres that demonstrate digital technologies, and having chance to explore their use according to personal needs. Having access to sources or centres that offer technical advice, and enable the individual to gain personal experience in solving technical problems. Creating own network of experts to recur to for help 	 Having access to a range of expert advice relating to new tools, devices, applications, software and services, to provide opportunities to review these in terms of current or future personal needs and purpose. Having access to expert technical advice that demonstrates how to solve technical problems that arise, and being able to use this in practice. Having access to a means to check personal competence, and being directed to sources to update competence areas that are identified as weak. Finding out about the potential of technologies in the resolution of complex or cognitive problems

Table A.I.2. Indicators for the development of digital competence: Safety, Problem-solving

	Competence	A-Foundation	B-Intermediate	C-Advanced
	Browsing, searching and filtering information	I can do some online searches through search engines. I know that different search engines can provide different results.	I can browse the internet for information and I can search for information online. I can articulate my information needs and I can select the appropriate information I find.	I can use a wide range of search strategies when searching for information and browsing on the Internet. I can filter and monitor the information I receive. I know whom to follow in online information sharing places (e.g. micro-blogging).
	Evaluating information	I know that not all online information is reliable.	I can compare different information sources.	I am critical about the information I find and I can cross-check and assess its validity and credibility.
Information	Storing and retrieving information	I know how to save files and content (e.g. texts, pictures, music, videos, and web pages). I know how to go back to the content I have saved.	I can save, store or tag files, content and information and I have my own storing strategy. I can retrieve and manage the information and content I have saved or stored.	I can apply different methods and tools to organise files, content, and information. I can deploy a set of strategies for retrieving the content I or others have organised and stored.
	Interacting through technologies	I can interact with others using basic features of communication tools, (e.g. mobile phone, VoIP, chat or email).	I can use several digital tools to interact with others using more advanced features of communication tools (e.g. mobile phone, VoIP, chat, email).	I am engaged in the use of a wide range of tools for online communication (emails, chats, SMS, instant messaging, blogs, micro-blogs, SNS). I can adopt digital modes and ways of communication that best fit the purpose. I can tailor the format and ways of communication to my audience. I can manage the different types of communication I receive.
	Sharing information and content	I can share files and content with others through simple technological means (e.g. sending attachments to emails, uploading pictures on the internet, etc.)	I can participate in social networking sites and online communities, where I pass on or share knowledge, content and information.	I can actively share information, content and resources with others through online communities, networks and collaboration platforms.
	Engaging in online citizenship	I know that technology can be used to interact with services and I passively use some (e.g.: online communities, government, hospital or medical centres, bank).	I can actively use some basic features of online services (e.g.: government, hospital or medical centres, bank, eGovernment services, etc).	I am actively participating in online spaces. I know how to get actively engaged in online participation and I can use several different online services.
cation	Collaborating through digital channels	I can collaborate with others using traditional technologies (e.g. email).	I can create and discuss outputs in collaboration with others using simple digital tools.	I frequently and confidently use several digital collaboration tools and means to collaborate with others in the production and sharing of resources, knowledge and content.
Communication	Netiquette	I know basic behaviour norms that apply when communicating with others using digital tools	I know the principles of online etiquette and I am able to apply them in my own context.	I can apply the various aspects of online etiquette to different digital communication spaces and contexts. I have developed strategies to discover inappropriate behaviour.

	Managing digital identity I am aware of the benefits and risks related to digital identity.	of my digital footprint.	I can manage several digital identities according to the context and purpose, I can monitor the information and data I produce through my online interaction, I know how to protect my digital reputation.
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Table A.I.3. Learning outcome descriptors for competences in areas Information and Communication.

	Competence	A-Foundation	B-Intermediate	C-Advanced
	Developing content	I can create simple digital content (e.g. text, or tables, or images, or audio, etc.).	I can produce digital content in different formats, including multimedia (e.g. text, tables, images, audio, etc.).	I can produce digital content in different formats, platforms and environments. I can use a variety of digital tools for creating original multimedia outputs.
	Integrating and re- elaborating	I can make basic changes to the content that others have produced.	I can edit, refine and modify the content I or others have produced.	I can mash-up existing items of content to create new ones.
U	Copyright and licences	I know that some of the content I use can be covered by copyright.	I have basic knowledge of the differences about copyright, copy left and creative commons and I can apply some licences to the content I create.	I know how different types of licences apply to the information and resources I use and create
Content creation	Programming	I can modify some simple function of software and applications (apply basic settings).	I can apply several modifications to software and applications (advanced settings, basic programme modifications).	I can interfere with (open) programmes, modify, change or write source code, I can code and programme in several languages, I understand the systems and functions that are behind programmes.
	Protecting devices	I can use basic steps to protect my devices (for instance: using anti-viruses, passwords, etc.).	I know how to protect my digital devices, I update my security strategies.	I frequently update my security strategies. I can take action when the device is under threat.
	Protecting personal data	I know that I can only share certain types of information about myself or others in online environments.	I can protect my and others online privacy. I have a general understanding of privacy issues and I have basic knowledge of how my data is collected and used.	I often change the default privacy settings of online services to enhance my privacy protection. I have an informed and wide understanding of privacy issues and I know how my data is collected and used.
	Protecting health	I know how to avoid cyber bullying. I know that technology can affect my health, if misused.	I know how to protect myself and others from cyber bullying and I understand the health risks associated with the use of technologies (from ergonomics aspects to addiction to technologies).	I am aware of the correct use of technologies to avoid health problems. I know how to find a good balance between online and off-line worlds.
Safety	Protecting the environment	I take basic measures to save energy.	I understand the positive and negative aspects of the use of technology on the environment.	I have an informed stance on the impact of technologies on everyday life, online consumption, and the environment.

Table A.I.4. Learning outcome descriptors for competences in areas Content Creation and Safety.

	Competence	A-Foundation	B-Intermediate	C-Advanced
	Solving technical problems	I can ask for targeted support and assistance when technologies do not work or when using a new device, programme or application.	I can solve easy problems that arise when technologies do not work.	I can solve a wide-range of problems that arise from the use of technology
	Identifying needs and technological responses	I can use some technologies to solve problems, but for limited tasks. I can make decisions when choosing a digital tool for a routine practice.	I understand what technology can do for me and what it cannot. I can solve a non routine tasks by exploring technological possibilities. I can select appropriate tool according to the purpose and I can evaluate the effectiveness of the tool	I can make informed decisions when choosing a tool, device, application, software or service for the task I am not familiar with. I am aware of new technological developments. I understand how new tools work and operate. I can critically evaluate which tool serves my purposes the best.
gu	Innovating and creatively using technology	I know that technologies and digital tools can be used for creative purposes and I can make some creative use of technologies.	I can use technologies for creative outputs and I can use technologies to solve problems (i.e. visualizing a problem). I collaborate with others in the creation of innovative and creative outputs, but I don't take the initiative.	I can solve conceptual problems taking advantage of technologies and digital tools, I can contribute tothe knowledge creation through technological means, I can take part in innovative actions throughthe use of technologies. I proactively collaborate with others to produce creative and innovative outputs.
Problem solving	Identifying digital competence gaps	I have some basic knowledge, but I am aware of my limits when using technologies.	I know how to learn to do something new with technologies.	I frequently update my digital competence needs.

Table A.I.5. Learning outcome descriptors for competences in area Problem Solving.

Annex II. EntreComp: the entrepreneurship competence framework

EntreComp (Bacigalupo, Kampylis, Punie, & Van den Brande, 2016) defines a list of 3 competence areas (Ideas and opportunities, Resources, Into action), each one with several competence as a framework with learning outcome descriptors to promote the entrepreneurship competence in education and work.

The EntreComp progression model consist of four main levels, Foundation, Intermediate, Advanced and Expert, each one divided into two sub-levels. However, O-City courses will develop only the three first levels, as in DIGCOMP: : A (foundation level), B (intermediate level) and C (advanced level). Table A.II.I shows an overview of the learning outcome descriptors provided by EntreComp, which are detailed in Tables A.II.2 – A.II.16

	Competence	A-Foundation	B-Intermediate	C-Advanced
	Spotting opportunities	Learners can find opportunities to generate value for others.	Learners can recognise opportunities to address needs that have not been met.	Learners can seize and shape opportunities to respond to challenges and create value for others.
ies	Creativity	Learners can develop multiple ideas that create value for others.	Learners can test and refine ideas that create value for others.	Learners can transform ideas into solutions that create value for others.
opportunities	Vision	Learners can imagine a desirable future.	Learners can build an inspiring vision that engages others.	Learners can use their vision to guide strategic decision-making.
and opp	Valuing ideas	Learners can understand and appreciate the value of ideas.	Learners understand that ideas can have different types of value, which can be used in different ways.	Learners can develop strategies to make the most of the value generated by ideas.
Ideas ar	Ethical and sustainable thinking	hohaviours both within the community and the madical decisions		Learners act to make sure that their ethical and sustainability goals are met.
	Self-awareness and self-efficacy	Learners trust their own ability to generate value for others.	Learners can make the most of their strengths and weaknesses.	Learners can compensate for their weaknesses by teaming up with others and by further developing their strengths.
	Motivation and perseverance	Learners want to follow their passion and create value for others.	Learners are willing to put effort and resources into following their passion and create value for others.	Learners can stay focused on their passion and keep creating value de-spite setbacks.
	Mobilising resources	Learners can find and use resources responsibly.	Learners can gather and manage different types of resources to create value for others.	Learners can define strategies to mobilise the resources they need to generate value for others.
Resources	Financial and economic literacy	Learners can draw up the budget for a simple activity.	Learners can find funding options and manage a budget for their value-creating activity.	Learners can make a plan for the financial sustainability of a value-creating activity.
Resor	Mobilising others	Learners can communicate their ideas clearly and with enthusiasm.	Learners can persuade, involve and inspire others in value-creating activities.	Learners can inspire others and get them on board for value- creating activities.
action	Taking the initiative	Learners are willing to have a go at solving problems that affect their communities.	Learners can initiate value-creating activities.	Learners can look for opportunities to take the initiative to add or create value.
Into ad	Planning and management	Learners can define the goals for a simple value- creating activity.	Learners can create an action plan, which identifies the priorities and milestones to achieve their goals.	Learners can refine priorities and plans to adjust to changing circumstances.

-	Coping with uncertainty, ambiguity and risk	Learners are not afraid of making mistakes while trying new things.	Learners can evaluate the benefits and risks of alternative options and make choices that reflect their preferences.	Learners can weigh up risks and make decisions despite uncertainty and ambiguity.
	Working withothers	Learners can work in a team to create value.	Learners can work together with a wide range of individuals and groups to create value.	Learners can build a team and networks based on the needs of their value-creating activity.
	Learning through experience	Learners can recognise what they have learnt through taking part in value-creating activities.	Learners can reflect and judge their achievements and failures and learn from these.	Learners can improve their abilities to create value by building on their previous experiences and interactions with others.

Table A.II.1. EntreComp overview

Area	Ideas and opportunities		Competence	Spotting o	pportunities
Hint	Use your imagination and abilities to	identify opportunities f	or creating value.		
Descriptor	Descriptor Identify and seize opportunities to create value by exploring the social, cultural and economic landscape. Identify needs and challenges to need to be met. Establish new connections and bring together scattered elements of the landscape to create opportunities to create value.				
		Levels	of proficiency		
	A - Foundation	B - I	ntermediate		C - Advanced
I can find opportunities to help others/ I can recognise opportunities to create value in my community and surroundings. I can find different examples of challenges that need solutions/ I can recognise challenges in my community and surroundings that I can contribute to solve. I can find examples of groups who have benefited from a solution to a given problem/ I can identify needs in my community and surroundings that have not been met. I can tell the difference between different areas where value can be created (for example, at home, in the community, in the environment, or in the economy or society)/ I can recognise the different roles the public, private and third sectors play in my region or country.		I can explain what may value/I can proactive create value, including I can identify opport alternative ways/I can challenge, so that alternative ways/I can recognise the private and third secountry/I can estably which needs, I want value. I can tell the differ creating value (for informal networks, market)/I can identify professional opporturing existing organisativentures	ely look for opporing out of necessity. cunities to solve proportion redefine the descretative opportunitient. different roles to ectors play in my olish which user got to tackle through the terms of the example, communicating organisatify my personal, inities for creating versity.	roblems in ription of a iesaddress he public, region or group, and h creating ntexts for nities and tions, the social and value, both	I can describe different analytical approaches to identify entrepreneurial opportunities/I can use my knowledge and understanding of the context to make opportunities to create value. I can take apart established practices and challenge mainstream thought to create opportunities and look at challenges in different ways/ I can judge the right time to take an opportunity to create value. I can carry out a needs analysis involving relevant stake-holders/ I can identify challenges related to the contrasting needs and interests of different stakeholders. I can identify the boundaries of the system that are relevant to my (or my team's) value-creating activity/ I can analyse an existing value- creation activity by looking at it as a whole and identifying opportunities to develop it further.

Table A.II.2 Learning outcome descriptors for competence Spotting Opportunities (Area Ideas and Opportunities

Area Ideas and opportunities	Competence Creativity			
Hint Develop creative and purposeful idea	as			
Descriptor Develop several ideas and opportunities to create value, including better solutions to existing and new challenges. Explore and experimentwith innovative approaches. Combine knowledge and resources to achieve valuable effects.				
	Levels of proficiency			
A - Foundation	B - Intermediate	C - Advanced		
I can show that I am curious about new things/ I can explore new ways to make use of existing resources. I can develop ideas that solve problems that are relevant to me and my surroundings/ Alone and as part of a team, I can develop ideas that create value for others. I can approach open-ended problems (problems that can have many solutions) with curiosity/ I can explore open-ended problems in many ways so as to generate multiple solutions. I can assemble objects that create value for me and others/I can improve existing products, services and processes so that they better meet my needs or those of my peers and the community. I can find examples of innovative products, services and solutions/I can describe how some innovations have transformed society.	I can experiment with my skills and competences in situations that are new to me/I can actively search for new solutions that meet my needs. I can experiment with different techniques to generate alternative solutions to problems, using available resources in an effective way/I can test the value of my solutions with end users. I can take part in group dynamics aimed at defining open-ended problems/I can reshape open-ended problems to fit my skills. I can identify the basic functions that a prototype should have to illustrate the value of my idea/I can assemble, test and progressively refine proto-types that simulate the value I want to create. I can tell the difference between types of innovations (for example, process versus product innovation and social innovation, incremental versus disruptive innovation)/I can judge if an idea, product or process is innovative or just new to me.	I can actively search for new solutions that improve the value-creating process/ I can combine my understanding of different contexts to transfer knowledge, ideas and solutions acrossdifferent areas. I can describe different techniques to test innovative ideas with end users/ I can set up processes to involve stakeholders in finding, developing and testing ideas. I can describe and explain different approaches to shaping open-ended problems and different problem-solving strategies/ I can help others create value by encouraging experimentation andusing creative techniques to approach problems and generate solutions. I can create (alone or with others) products or services that solve my problems and my needs/I can develop and deliver value in stages, launchingwith the core features of my (or my team's) idea and progressively adding more. I can describe how innovations diffuse in society, culture and the market/I can describe different levels of innovation (for example, incremental, breakthrough or transformation-al)		

Table A.II.3 Learning outcome descriptors for competence Creativity (Area Ideas and Opportunities)

Area	Ideas and op	portunities Compete	nce	Vision
Hint	Work toward	ds your vision of the future		
Descriptor	Imagine the	future. Develop a vision to turn ideas into action. Visualise	future sce	enarios to help guide effort and action
		Levels of proficie	ency	
A - Fou	ndation	B - Intermediate		C – Advanced
future/ I o simple futu where value	e a desirable can develop re scenarios e is created nmunity and s	I can develop (alone or with others) an inspiring vision for the future that involves others/ I can build future scenarios around my value-creating activity. I can explain what a vision is and what purpose itserves/ I am aware of what is needed to build a vision. My vision for creating value drives me to make the effort to turn ideas into action/ I can decide what type of vision for creating value I would like to contribute to.	visions for Vision for I can exp prepare activity t process of I can ider	my understanding of the context to identify different strategic or creating value/ I can discuss my (or my team's) strategic r creating value. Idain the role of a vision statement for strategic planning/ I can a vision statement for my (or my team's) value-creating that guides internal decision-making throughout the whole of creating value. Intify the changes needed to achieve my vision/ I can promote as for change and transformation that contribute to my vision.

Table A.II.4 Learning outcome descriptors for competence Vision (Area Ideas and Opportunities)

Area	Ideas and opportunities		Competence	Valuing ideas
Hint	Make the most of ideas and oppo	ortunities		
Descriptor	Judge what value is in social, cult	ural and economic terms. F	Recognise the poten	tial an idea has for creating value and identify
		Levels	s of proficiency	
	A – Foundation	B - Interme	ediate	C - Advanced
myself and groups, such value in my I can clarify used and a rights/I can and circulat can be pr	amples of ideas that have value for others/ I can show how different has firms and institutions, create community and surroundings. that other people's ideas can be acted on, while respecting their has explain that ideas can be shared ed for the benefit of every-one or otected by certain rights, for py-rights or patents.	I can tell the difference cultural and economic which type of value I war choose the most appropso. I can tell the difference licences that can be used protect rights/ can appropriate licence fo sharing and protecting the my ideas.	value/ I can decide it to act on and then riate pathway to do be between types of d to share ideas and choose the most r the purpose of	through entrepreneurship, such as social, cultural or economic value/ I can break down a value chain into its different parts and identify how value is added in each part. I can tell the difference between trademarks, registered design rights, patents, geographical indications, trade secrets, confidentiality agreements and copyright licences, including open, public-domain licences such as creative com-mons/ When creating ideas with others, I can outline a

Table A.II.5 Learning outcome descriptors for competence Valuing ideas (Area Ideas and Opportunities)

Area	Ideas and opportunities		Competence	Ethical a	nd sustainable thinking
Hint	Assess the consequences and impact of ideas, opportunities and actions				
Descriptor	·				on on the target community, the market, society and c goals are, and the course of action chosen. Act
		Levels	of proficiency		
	A - Foundation	B - Ir	ntermediate		C - Advanced
honesty, commitment importance I can list expensive the behaviour recognise expensive the society as a light can find any human action economic to between the	nise behaviours that show integrity, responsibility, courage and at / I can describe in my own words the of integrity and ethical values. xamples of environmentally friendly that benefits a community / I can examples of environmentally friendly by companies that creates value for whole. Ind list examples of changes caused by on in social, cultural, environmental or contexts / I can tell the difference impact of a value-creating activity on ommunity and the broader impact on	I can apply ethical the production processes integrity when taking I can identify practice and their implication produce a clear produce a clear produce a clear produce and their implication produce a clear produce and identify the opportunities will have target group community/ I can identify I can identify the chan my team's) value-ostakeholders who can future generations, of I can tell the difference of re-sources and my value-creating act environment.	I am driven by how decisions. The ses that are not suggested to the environment of the e	ustainable ent/ I can nen faced aking up team, on rrounding who are by my (or including example, unting for impact of	I can argue that ideas for creating value should be supported by ethics and values relating to gender, equality, fairness, social justice and environmental sustainability/ I can take responsibility for promoting ethical behaviour in my area of influence, (for example, by promoting gender balance highlighting inequalities and any lack of integrity). I can discuss the impact an organisation has on the environment (and vice versa)/ I can discuss the relationship between society and technical developments, relating to their implications for the environment. I can analyse the implications of my value-creating activity within the boundaries of the system I am working in/ I can define the purpose of the impact assessment, impact monitoring, and evaluation of impact. I can tell the difference between input, output, outcomes and impact/ I can discuss a range of accountability methods for both functional and strategic accountability.

Table A.II.6 Learning outcome descriptors for competence Ethical and sustainable thinking (Area Ideas and Opportunities)

Area	Resources		Competence	Self-awa	reness and self-efficacy
Hint	Believe in yourself and keep developing				
Descriptor	Reflect on your needs, aspirations ar weaknesses. Believe in your ability to			•	and assess your individual and group strengths and setbacks and temporary failures
		Level	s of proficiency		
	A - Foundation	B - Iı	ntermediate		C - Advanced
goals/ I can and goals. I can identifinot good at I believe in successfully I intend to. I can list d functions/ abilities are	ify my needs, wants, interests and describe my needs, wants, interests by things I am good at and things I am my ability to do what I am asked / I believe in my ability to achievewhat ifferent types of jobs and their key I can describe which qualities and needed for different jobs, and which alities and abilities I have.	I can commit to finterests and goals/ I and group needs, wa in relation to opportul. I can judge my strethose of others in relating value/ I amostrengths and ability opportunities to created I can judge the achievements (compoutside influences)/ people and situations. I can describe my ski to career options, in can use my skills and career path, as a restrom necessity.	can reflect on my ints, interests and as unities and future presents and weakned elation to opportudiven by the desirectes to make the ste value. control I have beared with any con I believe I can sfor the better. Ils and competence occluding self- emploid competences to cl	individual spirations rospects. esses and inities for to use my most of over my strol from influence es relating byment/ I hange my	I can translate my needs, wants, interests and aspirations into goals that help me reach them/ I can help others to reflect on their needs, wants, interests and aspirations and how they can turn these into goals. I can team up with others to compensate for our weaknesses and add to our strengths/ I can help others identify their strengths and weaknesses. I believe in my ability to carry out what I have imagined and planned, despite obstacles, limited re-sources and resistance from others/ I believe in my ability to understand and take the good out of experiences that others may label as failures. I can discuss how a realistic understanding and evaluation of my personal attitudes, skills and knowledge can influence my decision-making, relationships with other people and quality of life/ I can choose professional development opportunities with my team and organisation based on a clear understanding our strengths and weaknesses.

Table A.II.7 Learning outcome descriptors for competence Self-awareness and self-efficacy (Resources)

Area	Resources	Competence Motivation	on and perseverance
Hint	Stay focused and don't give up		
Descriptor		on and satisfy your need to achieve. Be prepared to lunder pressure, adversity, and temporary failure.	oe patient and keep trying to achieve your long-term
		Levels of proficiency	
	A - Foundation	B - Intermediate	C - Advanced
to somethin	by the possibility to do or contribute ng that is good for me or for others/ I ted by the idea of creating value for others.	I can anticipate the feeling of achieving my goals and this motivates me/ I can regulate my own behaviour to stay driven and achieve the benefits of turning ideas into action.	I drive my effort by using my desire for achievement and belief in my ability to achieve/ I can coach others to stay motivated, encouraging them to commit to what they want to achieve.
I see tasks as challenges to do my best/I am motivated by challenges. I can recognise different ways of motivating myself and others to create value. I show passion and willingness to achieve my goals/I am determined and persevere when trying to achieve my (or my team's) goals. I do not give up and I can keep going even when facing difficulties/I am not afraid of working hard to achieve my goals.		I can set challenges to motivate myself/ I am willing to put effort in and use resources to overcome challenges and achieve my (or my team's) goals. I can reflect on the social incentives associated with having a sense of initiative and creating value for myself and others/ I can tell the difference between personal and external factors that motivate me or others when creating value. I can overcome simple adverse circumstances/ I can judge when it is not worth continuing with an	I can use strategies to stay motivated (for example, set goals, monitor performance and evaluate my progress)/ I can use strategies to keep my team motivated and focused on creating value. I can persevere in the face of adversities when trying to achieve my goals/ I can devise strategies to overcome standard adverse circumstances. I can celebrate short-term achievements, in order to stay motivated/ I can inspire others to work hard on their goals by showing passion and a strong sense of owner-ship.
		idea. I can delay achieving my goals in order to gain greater value, thanks to prolonged effort/ I can maintain effort and interest, despite setbacks.	

Table A.II.8 Learning outcome descriptors for competence Motivation and perseverance (Resource

Area	Resources		Competence	Mobilizin	g resources	
Hint	Get and manage the re-sources you need.					
Descriptor						
		Level	s of proficiency			
	A - Foundation	B - Iı	ntermediate		C - Advanced	
appreciate of with others. I value my poly can describe reuse, repaired to the can recognize example, standard time as a scalar can look of achieving which sources of heading the can look of the can look o	chat resources are not unlimited/I can the importance of sharing resources ossessions and use them responsibly/be how resources last longer through r and recycling. nise different uses for my time (for udying, playing, resting)/I value my arce resource. for help when I am having difficulty hat I have decided to do/I can identify telp for my value-creating activity (for achers, peers, mentors).	I can experiment with resources to turn my and manage the necidea into action. I can discuss the priand resource effice responsibly and effice materials in the supprocess, public space. I can discuss the redifferent value-creat time effectively to action of the control of t	y ideas into action/ I ressary resources to resources to reciency/ I use reciently (for example, oply chain or manufas). There of the formula in the control of the contro	can get turn my economy esources energy, facturing time in use my of labour ublic and creating ter-prise	I can develop a plan for dealing with limited resources when setting up my value-creating activity/ I can get together the necessary resources to develop my value-creating activity. I take into account the non-material cost of using resources when taking decisions about my value-creating activities/ I can choose and put in place effective resource- management procedures (for example, life-cycle analysis, solid waste). I can manage my time effectively, using techniques and tools that help make me (or my team) productive/ I can help others manage their time effectively. I can find digital solutions (for example, free, paid for, or open-source) that can help me manage my value- creating activities efficiently/ I can find support to help me take advantage of an opportunity to create value (for example, advisor or consultancy services, peer or mentor sup-port).	

Table A.II.9 Learning outcome descriptors for competence Mobilizing resources (Resources)

Area	Resources		Competence	Financial	and economic literary
Hint	Develop financial and economic know	Develop financial and economic know-how			
Descriptor	Estimate the cost of turning an idea in to make sure my value-creating activ			ce and eval	uate financial decisions over time. Manage financing
		Levels	of proficiency		
	A - Foundation	B - Ir	ntermediate		C - Advanced
to money/concepts (market price) I can judge up a simple manner. I can identifamilies, buthe state/I the economican outline how taxatic	pasic terminology and symbols related I can explain simple economic for example, supply and demand, e, trade). what to use my money for/ I can draw e household budget in a responsible tify the main types of income for sinesses, non-profit organisations and can describe the main role of banks in my and society. e the purpose of taxation/ I can explain on finances the activities of a country in providing public goods and services.	I can use the concercomparative advanta happen between indi I can read income stated in the concentration of the c	ge to explain why eviduals, regions and tements and balance adget for a valuethe the cash-flow news. The creating activities on and so on) and of ownership (impany, co-operative alue-creating activid-funding, and shamain accountancy to fulfil to meet	exchanges dinations/ce sheets. creating eeds of a scantake er-prise, a can have individual we and so ources of vity (for res).	I can explain the difference between a balance sheet and a profit-and-loss account/ I can build financial indicators (for example, return on investment). I can apply the financial planning and forecasting concepts that I need to turn ideas into action (for example, profit or not for profit)/ I can judge the cash-flow needs of a complex project. I can choose the most appropriate sources of funding to start up or expand a value- creating activity/ I can apply for public or private business support programmes, financing schemes, public subsidies or calls for tender. I can estimate how my financial decisions (investments, buying assets, goods and so on) affect my tax/ I can make financial decisions based on current taxation schemes.

Table A.II.10 Learning outcome descriptors for competence Financial and economic literary (Resources)

Area	Resources		Competence	Mobilizing others
Hint	Inspire, engage and get others on board			
Descriptor	Inspire and enthuse relevant stake persuasion, negotiation and leader	• •	needed to achieve valuable	outcomes. Demonstrate effective communication,
		Levels c	of proficiency	
	A - Foundation	B - Inte	rmediate	C - Advanced
I can persua arguments. I can common can common persuasively example po I can p communica	usiasm for challenges/ I am actively creating value for others. Ide others by providing a number of unicate my ideas clearly to others/ I unicate my team's ideas to others by using different methods (for sters, videos, role-play). I covide examples of inspiring tion campaigns/ I can discuss how edia can be used to reach audiences ways.	example. I can persuade others by arguments/I can persuade their emotions. I can communicate image can communicate the validea to stakeholders froeffectively. I can use various metho to communicate value-c	by difficulties/ I can lead by providing evidence for my de others by appealing to ginative design solutions/ I alue of my (or my team's) om different backgrounds ds, including social media, reating ideas effectively/ I iately, showing that I am and purpose.	I can get endorsement from others to support my value-creating activity/ I can inspire others, despite challenging circumstances. I can pitch effectively in front of potential investors or donors/ I can overcome resistance from those who will be affected by my or my (team's) vision, innovative approach, and value-creating activity. I can communicate the vision for my (or my team's) venture in a way that inspires and persuades external groups, such as funders, partner organisations, volunteers, new members and affiliate supporters/ I can produce narratives and scenarios that motivate, inspire and direct people. I can influence opinions in relation to my value-creating activity, through a planned approach to social media/ I can design effective social- media campaigns to mobilize people in relation to my (or my team's) value-creating activity.

Table A.II.11 Learning outcome descriptors for competence Mobilizing others (Resources)

Area	Into action		Competence	Taking the initiative
Hint	Go for it			
Descriptor	Initiate processes that create value. tasks.	Take up challenges. Act	and work independently to achieve	goals, stick to intentions and carry out planned
		Levels	s of proficiency	
	A – Foundation	B - I	ntermediate	C - Advanced
am comforta activities. I show some am given/ I value-creation I can have a surrounding	out the tasks I am given responsibly/ I able in taking responsibility in shared independence in carrying out tasks I can work independently in simpleing activities. go at solving problems that affect my s/ I show initiative in dealing with at affect my community.	out simple tasks in vaindividual and group activities. I can initiate simple driven by the possibil creating activities ind I actively face challe opportunities to creating activities in the composition of the composition	enges, solve problems and seize te value. als for the future in line with my interests and achievements/ I can	I can delegate responsibility appropriately/ I can encourage others to take responsibility in value-creating activities. I can initiate value-creating activities aloneand with others/ I can help others work independently. I take action on new ideas and opportunities, which will add value to a new or existing value-creating venture/ I value others taking the initiative in solving problems and creating value.

Table A.II.12 Learning outcome descriptors for competence Taking the initiative (Into action)

Area	Into action	Competence	Planning and management
Hint	Prioritise, organise and follow	up.	
Descriptor	Set long-, medium- and short-	term goals. Define priorities and action plans. Adapt to	unforeseen changes
		Levels of proficiency	
	A – Foundation	B - Intermediate	C - Advanced
value-creati alternative g context. I can carry creating act of simple ta feeling unco I can recall needed in a took part in that are activity. I can recogr made on a task is going I am open t	the order of steps that was simple value-creating activity I // I can identify the basic steps needed in a value-creating hise how much progress I have task/ I can monitor whether a	I can describe my goals for the future in line with my strengths, ambitions, interests and achievements/ I can set short-term goals that I can act on. I can create an action plan which identifies the necessary steps to achieve my goals/ I can allow for the possibility of changes to my plans. I can develop a business model for my idea/ I can define the key elements that make up the business model necessary to deliver the value I have identified. I can prioritise the basic steps in a value-creating activity/ I can set my own priorities and act on them. I can identify different types of data that are necessary for monitoring the progress of a simple value-creating activity/ I can describe different methods for performance and impact monitoring. I can adapt my plans to achieve my goals in light of changes that are outside my control/ I can adapt my plans to achieve my goals in light of changes that are outside my control.	I can develop a business plan based on the model, describing how to achieve the value identified/ I can organise my value-creating activities using planning methods such as business and marketing plans. I can define the priorities to meet my (or my team's) vision/ I can stay focused on the priorities set, despite changing circumstances

Table A.II.13 Learning outcome descriptors for competence Planning and management (Into action)

Area	Into action		Competence	Coping with uncertainty, ambiguity and risk
Hint	Make decisions dealing with u	incertainty, ambiguity and risk		
Descriptor		n the value-creating process, i	include structured ways o	vailable is partial or ambiguous, or when there is a risk of f testing ideas and prototypes from the early stages, to
		Levels	s of proficiency	
	A – Foundation	B - Interm	ediate	C - Advanced
trying new t to achieve th I can ident surrounding	raid of making mistakes while chings/I explore my own ways hings. cify examples of risks in my city is an describe risks related value-creating activity in which	I can discuss the role the reducing uncertainty, amb actively look for, compare sources of information ambiguity, uncertainty, and I can tell the difference be unacceptable risks/ I can benefits of self-employmen options, and make chopreferences. I can critically evaluate the idea that creates value, taki of factors/ I can critically evaluate the formal set-up of a value area in which I work.	piguity and risk/ I can and contrast different that help me reduce risks in making decisions. Detween acceptable and weigh up the risks and the with alternative career pices that reflect my risks associated with an ang into account a variety aluate the risks related to	I can find ways of making decisions when the information is incomplete/ I can pull together different viewpoints to take informed decisions when the degree of uncertainty is high. I can apply the concept of affordable losses to make decisions when creating value/ I can compare value-creating activities based on a risk assessment. I can demonstrate that I can make decisions by weighing up both the risks and the expected benefits of a value-creating activity/ I can outline a risk management plan for guiding my (or my team's) choices while developing my value-creating activity.

Table A.II.14 Learning outcome descriptors for competence Coping with uncertainty, ambiguity and risk (Into action)

Area	Into action	Competence	Working with others
Hint	Team up, work together, and networ		
Descriptor	Work together and cooperate with opositively when necessary.	others to develop ideas and turn them into actio	n. Network. Solve conflicts and face up to competition
		Levels of proficiency	
	A - Foundation	B - Intermediate	C - Advanced
and situation can bring to I can show recognise the behaviours and behaviours and behaviours for achieving I am open to playing diresponsibility working in a I am open to activities/ I creating activities/ I can expassociation, support (frommunities)	involving others in my value- creating can contribute to simple value- vities. Idin the meaning and forms of cooperation and peer-to-peer or example, family and other s)/ I am open to establishing new dicooperation with others (individuals	I can combine different contributions to create value/I can value diversity as a possible source of ideas and opportunities. I can express my (or my team's) value-creating ideas assertively/I can face and solve conflicts. I can listen to other people's ideas for creating value without showing prejudice/I can listen to my end users. I can work with a range of individuals and teams/I share the ownership of value-creating activities with the members of my team. I can contribute to group decision- making constructively/I can create a team of people who can work together in a value-creating activity. I can use the relationships I have to get the support I need to turn ideas into action, including emotional support/I can establish new relation-ships to get the support I need to turn ideas into action, including emotional support (for example, joining a mentor network)	I can compromise where necessary/ I can deal with non-assertive behaviour that hinders my (or myteam's) value -creating activities (for example, destructive attitudes, aggressive behaviour and so on)/ I can manage conflicts effectively. I can describe different techniques for managing relationships with end users/I can put in place strategies to actively listen to my end users and act on their needs- I can build a team based on the individual knowledge, skills and attitudes of each member/I can contribute to creating value by teaming up with distributed communities through digital technologies. I can use techniques and tools that help people to work together/I can give people the help and support they need to perform at their best within a team. I can use my network to find the right people to work on my (or my team's) value-creating activity/I proactively make contact with the right people inside and outside my organisation to support my (or my team's) value-creating activity (for example, at conferences on social media

Table A.II.15 Learning outcome descriptors for competence Working with others (Into action)

Area Into action	Competence		Learning through experience	
Hint	Learn by doing	Learn by doing		
Descriptor	•	Use any initiative for value creation as a learning opportunity. Learn with others, including peers and mentors. Reflect and learn from both success and failure (your own and other people's).		
		Levels of proficiency		
A – Foundation	B - Intermediate		C - Advanced	
I can find examples of great failures that have created value/ I can provide examples of temporary failures that have led to valuable achievements. I can provide examples that show that my abilities and competence have increased with experience/ I can anticipate that my abilities and competence will grow with experience, through both successes and failures. I can recognise what I have learnt from taking part in value- creating activities/ I can reflect on my experience in taking part in value-creating activities and learn from it	I can reflect on failures (mine and other people's), identify their causes and learn from them/ I can judge if and how I have achieved my goals, so that I can evaluate my performance and learn from it. I can reflect on the relevance of my learning pathways for my future opportunities and choices/ I am always looking for opportunities to improve my strengths and reduce or compensate for my weaknesses. I can reflect on my interaction with others (including peers and mentors) and learn from it/ I can filter the feedback provided by others and keep the good from it.		I can reflect on my (or my team's) achievements and temporary failures as things develop so as to learn and improve my ability to create value/I can help others reflect on their achievements and temporary failures by providing honest and constructive feedback. I can find and choose opportunities to over-come my (or my team's) weaknesses and to develop my (or my team's) strengths/I can help others develop their strengths and reduce or compensate for their weaknesses. I can integrate lifelong learning into my personal development strategy and career progress/I can help others reflect on their interaction with other people and help them learn from this interaction.	

Table A.II.16 Learning outcome descriptors for competence Learning through experience (Into action)

Annex III. Letter of invitation template to include a city in O-City

Request for permission to incorporate the city of	
to the digital world O-City.org	

Exmo. Mr. Mayor:

D. Jose Marin-Roig Ramon,
Project Manager
O-CITY (Orange: Creativity, Innovation & Technology)
Erasmus + (600963-EPP-1-2018-1-ES-EPPKA2-KA)
http://o-city.webs.upv.es

EXPOSES:

That the O-CITY project, funded by the European Commission, within the Erasmus Plus (Knowledge Alliances) program, develops an online application to visualize the natural and cultural heritage of the world's towns and cities. On this platform, cities can represent not only their monuments and natural spaces, but also their culture and traditions through videos, photographs, animations and other multimedia elements produced as educational projects in the classrooms of training centers and institutions.

REQUEST:

That the Polytechnic University of Valencia be authorized to incorporate _____ into the O-City.org application, to enhance the city's heritage in the online world, and stimulate digital skills in local training centers.

En the city	≀of	. on	202

O-CITY

José Marín-Roig Ramón Professor Universitat Politècnica de València Campus de Gandia

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AUTHORISATION