

ASSISTANCE

Adapted situation awareneSS tools and tallored training curricula for increaSing capabiliTies and enhANcing the proteCtion of first respondErs



European Commission

Project co-funded by the European Union within the Horizon 2020 Programme



Project Ref. N°	ASSISTANCE H2020 - 832576
Start Date / Duration	May 1, 2019 (36 months)
Dissemination Level ¹	PU (Public)
Author / Organisation	AAHD

Deliverable D6.2

Training Curricula development & Scheduling

30/04/2020

¹ PU: Public; PP: Restricted to other programme participants (including the EC services); RE: Restricted to a group specified by the Consortium (including the EC services); CO: Confidential, only for members of the Consortium (including the EC services).

ASSISTANCE

Nowadays different first responder (FR) organizations cooperate together to face large and complex disasters that in some cases can be amplified due to new threats such as climate change in case of natural disasters (e.g. larger and more frequent floods and wild fires, etc) or the increase of radicalization in case of man-made disasters (e.g. arsonists that burn European forests, terrorist attacks coordinated across multiple European cities).

The impact of large disasters like these could have disastrous consequences for the European Member States and affect social well-being on a global level. Each type of FR organization (e.g. medical emergency services, fire and rescue services, law enforcement teams, civil protection professionals, etc.) that mitigate these kinds of events are exposed to unexpected dangers and new threats that can severely affect their personal safety.

ASSISTANCE proposes a holistic solution that will adapt a well-tested situation awareness (SA) application as the core of a wider SA platform. The new ASSISTANCE platform is capable of offering different configuration modes for providing the tailored information needed by each FR organization while they work together to mitigate the disaster (e.g. real time video and resources location for firefighters, evacuation route status for emergency health services and so on).

With this solution ASSISTANCE will enhance the SA of the responding organisations during their mitigation activities through the integration of new paradigms, tools and technologies (e.g. drones/robots equipped with a range of sensors, robust communications capabilities, etc.) with the main objective of increasing both their protection and their efficiency.

ASSISTANCE will also improve the skills and capabilities of the FRs through the establishment of a European advanced training network that will provide tailored training based on new learning approaches (e.g. virtual, mixed and/or augmented reality) adapted to each type of FR organizational need and the possibility of sharing virtual training environments, exchanging experiences and actuation procedures.

ASSISTANCE is funded by the Horizon 2020 Programme of the European Commission, in the topic of Critical Infrastructure Protection, grant agreement 832576.

Disclaimer

This document contains material, which is the copyright of certain ASSISTANCE consortium parties, and may not be reproduced or copied without permission.

The information contained in this document is the proprietary confidential information of the ASSISTANCE consortium (including the Commission Services) and may not be disclosed except in accordance with the consortium agreement.

The commercial use of any information contained in this document may require a license from the proprietor of that information.

Neither the project consortium as a whole nor a certain party of the consortium warrant that the information contained in this document is capable of use, nor that use of the information is free from risk, and accepts no liability for loss or damage suffered by any person using this information.

The information in this document is subject to change without notice.

Executive Summary

The aim of ASSISTANCE Project is twofold on the one hand the project will protect and help the different FRs organizations that work together during the mitigation of large disasters (Natural or Man-made) and on the other hand **ASSISTANCE will improve the FRs capabilities and skills for facing these kinds of events.**

T6.2 pay attention to the second part of this ambitious objective, which is; to enhance FRs' capabilities for facing complex situations providing them advanced training based on Virtual Reality (VR) and Mixed Reality (MR) tailored to their organization characteristics.

Based on the training methodology defined in task 6.1, a step-wise tailored training curriculum is composed describing what to do, when, where to do it and to what type of FRs is addressed for each part of the curricula.

A set of 8 subjects have been prepared in a stepwise approach, considered the pre-requisites needed for each subject and a gradual increase in the difficulty and complexity. Firstly; VR-AR-MR platforms have been introduced to the trainees as part of the "Background Knowledge" offered. Then; "Virtual Reality Platforms" available in the consortium and their "Usage" has been also explained. The "Virtual Reality Scenarios" to be performed through the mentioned VR platforms have been presented. The "Simple Virtual Reality Scenarios" that prepared for each FRs separately to allow them to be familiar with the use of the VR training platforms. Finally; 3 different more complex scenarios have been prepared for being performed during the 3 project pilots as the 3 final subjects of the curriculum.

The training objectives of each subjects have been identified as well as the methods for their evaluation have been also stated. In addition, curriculum schedule has been defined in this document as required in the DoA.

List of Authors

Organisation	Authors
AAHD	Zeynep Sofuoglu, Turhan Sofuoglu, Ismail Umit BAL

Change control datasheet

Version	Changes	Chapters	Pages	Date
0.1	First draft	All	32	03/03/20
0.2	Internal version updated	All	43	12/03/20
0.3	Next internal version updated	All	63	12/04/20
0.4	First Consolidated version	All	74	22/04/20
1.0	Deliverable final version	All		

Content

Executive Summary	3
List of Authors	4
Change control datasheet	5
Content.....	6
List of Figures.....	9
List of Tables	10
Acronyms.....	11
1. Introduction.....	12
2. Training Curriculum Definition Step by Step Approach	13
3. ASSISTANCE Training Curriculum	16
3.1. Subject Definition	16
3.2. Subjects Description	17
3.2.1. Subject 1: Background Knowledge	17
3.2.1.1. Subject Objectives	17
3.2.1.1.1. General Objective 1.1 To learn VR general concepts.....	18
3.2.1.1.2. General Objective 1.2: To know the main available online VR platforms.....	18
3.2.1.1.3. General Objective 1.3: To learn about the training through VR platforms.....	18
3.2.1.1.4. General Objective 1.4: To learn about the VR platforms for training FRs.....	19
3.2.1.2. Subject Contents Description	19
3.2.1.2.1. Virtual reality concept.....	19
3.2.1.2.2. Virtual reality open platforms.....	19
3.2.1.2.3. General introduction to the training through VR platforms/applications	19
3.2.1.2.4. Specific Training of FRs using VR.....	20
3.2.1. General Remarks	20
3.2.2. Subject 2 ASSISTANCE Virtual Reality Platforms (UPVLC).....	23
3.2.2.1. Subject Objectives	23
3.2.2.1.1. Main objective	23
3.2.2.1.2. General objective 2.1: Description of UPVLC VR platform.....	23
3.2.2.1.3. General objective 2.2: Description of IFV VR platform.	24
3.2.2.1.4. General objective 2.3: Description of CNBOP VR platform.....	24
3.2.2.2. Subject Contents Description	25
3.2.2.2.1. Description of the UPVLC VR platform (SIMTAC).....	25
3.2.2.2.2. Description of the IFV VR platform (ADMS)	25
3.2.2.2.3. Description of the CNBOP VR platform.....	25
3.2.2.3. General Remarks	26
3.2.4. Subject 3: ASSISTANCE Virtual Reality Platforms Usage (CNBOP)	28
3.2.4.1. Subject Objectives	28

D6.2 Training Curricula development & Scheduling

3.2.4.1.1.	Main objective	28
3.2.4.1.2.	General objective 3.1: Usage of UPVLC VR platform.	29
3.2.4.1.3.	General objective 3.1: Usage of IFV VR platform.	29
3.2.4.1.4.	General objective 3.1: Usage of CNBOP VR platform.	30
3.2.4.2.	Subject Contents Usage	30
3.2.4.2.1.	Usage of the UPVLC VR platform (SIMTAC)	30
3.2.4.2.2.	Usage of the IFV VR platform (ADMS).....	30
3.2.4.2.3.	Usage of the CNBOP VR platform	31
3.2.5.	General Remarks	31
3.2.6.	Subject 4: ASSISTANCE Virtual Reality Scenarios Descriptions.....	33
3.2.6.1.	Subject Objectives	33
3.2.6.1.1.	Main objective	33
3.2.6.1.2.	General objective 4.1: Description of the simple scenarios that will be performed on line in subject 5.	34
3.2.6.1.3.	General objective 4.2: Description of the scenarios that will be performed in subject 6 during the first project pilot.....	34
3.2.6.1.4.	General objective 4.3: Description of the scenarios that will be performed in subject 7 during the second project pilot.....	34
3.2.6.1.5.	General objective 4.4: Description of the scenarios that will be performed in subject 8 during the third project pilot.	35
3.2.7.	Subject Contents Description	35
3.2.7.1.	Description of the UPVLC VR scenarios for subject 5	35
3.2.7.2.	Description of the IFV VR scenarios for subject 5	35
3.2.7.3.	Description of the CNBOP VR scenarios for subject 5	36
3.2.7.4.	Description of the UPVLC VR scenarios for subject 6	36
3.2.7.5.	Description of the IFV VR scenarios for subject 6	36
3.2.7.6.	Description of the CNBOP VR scenarios for subject 6	36
3.2.7.7.	Description of the UPVLC VR scenarios for subject 7	36
3.2.7.8.	Description of the IFV VR scenarios for subject 7	37
3.2.7.9.	Description of the CNBOP VR scenarios for subject 7	37
3.2.7.10.	Description of the UPVLC VR scenarios for subject 8	37
3.2.7.11.	Description of the IFV VR scenarios for subject 8	38
3.2.7.12.	Description of the CNBOP VR scenarios for subject 8	38
3.2.8.	General Remarks	38
3.2.9.	Subject 5: ASSISTANCE Simple Virtual Reality Scenarios	41
3.2.9.1.	Subject Objectives	41
3.2.9.1.1.	General objective 5.1: To perform and pass UPVLC scenario proposed in section 3.2.6.1.	41
3.2.9.1.2.	General objective 5.2: To perform and pass IFV scenario proposed in section 3.2.6.2.	41
3.2.9.1.3.	General objective 5.3: To perform and pass CNBOP scenario proposed in section 3.2.6.3.	42
3.2.9.2.	Subject Contents Description	43
3.2.10.	Subject 6: ASSISTANCE First Pilot Virtual Reality Scenarios	44
3.2.10.1.	Subject Objectives	44
3.2.10.1.1.	General objective 6.1: To perform and pass UPVLC scenario proposed in section 3.2.6.4.	44

D6.2 Training Curricula development & Scheduling

3.2.10.1.2.	General objective 6.2: To perform and pass IFV scenario proposed in section	
3.2.6.5.		44
3.2.10.1.1.	General objective 6.3: To perform and pass CNBOP scenario proposed in section	
3.2.6.6.		45
3.2.10.2.	Subject Contents Description	46
3.2.11.	Subject 7 ASSISTANCE Second Pilot Virtual Reality Scenarios	47
3.2.11.1.	Subject Objectives	47
3.2.11.1.1.	General objective 7.1: To perform and pass UPVLC scenario proposed in section	
3.2.6.7.		47
3.2.11.1.2.	General objective 7.2: To perform and pass IFV scenario proposed in section	
3.2.6.8.		47
3.2.11.1.3.	General objective 7.3: To perform and pass CNBOP scenario proposed in section	
3.2.6.9.		48
3.2.11.2.	Subject Contents Description	48
3.2.12.	Subject 8 ASSISTANCE Third Pilot Virtual Reality Scenarios.....	50
3.2.12.1.	Subject Objectives	50
3.2.12.1.1.	General objective 8.1: To perform and pass UPVLC scenario proposed in section	
3.2.6.10.		50
3.2.12.1.2.	General objective 8.2: To perform and pass IFV scenario proposed in section	
3.2.6.11.		50
3.2.12.1.3.	General objective 8.3: To perform and pass CNBOP scenario proposed in section	
3.2.6.12.		51
3.2.12.2.	Subject Contents Description	51
4.	Subject Evaluation Criteria.....	52
4.1.	<i>Evaluation criteria for the first 4 theoretical subjects</i>	<i>52</i>
4.2.	<i>Evaluation criteria for the practical subjects.....</i>	<i>54</i>
4.2.1.	UPVLC VR platform evaluation criteria	56
4.2.2.	IFV VR platform evaluation criteria	56
4.2.3.	CNBOP VR platform evaluation criteria	57
5.	D6.1 Conclusions applied for ASSISTANCE Training Curriculum	58
6.	ASSISTANCE Training Scheduling	60
7.	Conclusions.....	62
8.	Annex 1: Instructions for Accessing the ASSISTANCE Course.....	63

List of Figures

Figure 1 ASSISTANCE Curriculum Definition Step by Step Approach.....	13
Figure 2 Definition of a subject as General and Specific objectives.....	14
Figure 3 Screenshot showing Subject 1 content for VR general concepts description in the ASSISTANCE Training Moodle server	20
Figure 4 Screenshot showing Subject 1 content for online VR platforms description in the ASSISTANCE Training Moodle server	21
Figure 5 Screenshot showing Subject 1 content for training VR platforms description in the ASSISTANCE Training Moodle server	21
Figure 6 Screenshot showing Subject 1 content for specific VR platforms for training FRs description in the ASSISTANCE Training Moodle server	22
Figure 7 Screenshot showing Subject 2 content for UPVLC platform description in the ASSISTANCE Training Moodle server.....	26
Figure 8 Screenshot showing Subject 2 content for IFV platform description in the ASSISTANCE Training Moodle server.....	26
Figure 9 Screenshot showing Subject 2 content for CNBOP platform description in the ASSISTANCE Training Moodle server.....	27
Figure 10 Screenshot showing Subject 3 content for UPVLC platform description in the ASSISTANCE Training Moodle server.....	31
Figure 11 Screenshot showing Subject 3 content for IFV platform description in the ASSISTANCE Training Moodle server.....	32
Figure 12 Screenshot showing Subject 3 content for CNBOP platform description in the ASSISTANCE Training Moodle server.....	32
Figure 13 Screenshot showing Subject 4 content for UPVLC initial scenarios in the ASSISTANCE Training Moodle server.....	39
Figure 14 Screenshot showing Subject 4 content for IFV initial scenarios in the ASSISTANCE Training Moodle server.....	39
Figure 15 Screenshot showing Subject 4 content for CNBOP initial scenarios in the ASSISTANCE Training Moodle server.....	40
Figure 16 Grade to pass configuration	53
Figure 17 ASSISTANCE training course showing the access restrictions to each subject.	53
Figure 18 FADCM model used for evaluation of trainees of IFV VR platform.	55
Figure 19 Excerpt from the training report with detailed information on the victim's condition and trainees' performance.....	57

List of Tables

Table 1 ASSISTANCE Training subjects	16
Table 2 Subject 2 general content description.....	17
Table 3 Specific objectives for accomplishing general objective 1.1	18
Table 4 Specific objectives for accomplishing general objective 1.2	18
Table 5 Specific objectives for accomplishing general objective 1.3	18
Table 6 Specific objectives for accomplishing general objective 1.4	19
Table 7 Subject 2 general content description.....	23
Table 8 Specific objectives for accomplishing general objective 2.1	24
Table 9 Specific objectives for accomplishing general objective 2.2	24
Table 10 Specific objectives for accomplishing general objective 2.3	24
<i>Table 11 Subject 3 general content description</i>	<i>28</i>
Table 12 Subject 4 general content description.....	33
Table 13 Specific objectives for accomplishing general objective 4.2	34
Table 14 Specific objectives for accomplishing general objective 4.2	34
Table 15 Specific objectives for accomplishing general objective 4.3	35
Table 16 Specific objectives for accomplishing general objective 4.4	35
Table 17 Specific objectives for accomplishing general objective 5.1	41
Table 18 Specific objectives for accomplishing general objective 5.2	42
Table 19 Specific objectives for accomplishing general objective 5.1	42
Table 20 Specific objectives for accomplishing general objective 6.1	44
Table 21 Specific objectives for accomplishing general objective 6.2	45
Table 22 Specific objectives for accomplishing general objective 6.3	45
Table 23 Specific objectives for accomplishing general objective 7.1	47
Table 24 Specific objectives for accomplishing general objective 7.2	48
Table 25 Specific objectives for accomplishing general objective 7.3	48
Table 26 Specific objectives for accomplishing general objective 8.1	50
Table 27 Specific objectives for accomplishing general objective 8.2	51
Table 28 Specific objectives for accomplishing general objective 8.3	51
Table 29 ASSISTANCE training process scheduling.....	60

Acronyms

ASSISTANCE	Adapted situation awareneSS tools and tallored training curricula for increaSing capabiliTie and enhANcing the proteCtion of first respondErs
PC	Project Coordinator
D#.#	Deliverable number #.# (D1.1 deliverable 1 of work package 1)
DoA	Description of Action of the project
EC	European Commission
EU	European Union
FADCM	Facts, Analysis, Decision, Communication and Monitoring
FR	First Responder
GA	Grant Agreement
H2020	Horizon 2020 Programme for Research and Innovation
M#	#th month of the project (M1=May 2018)
MR	Mixed Reality
WP	Work Package
IPR	Intellectual Property Rights
PSC	Project Steering Committee
PIC	Project Implementation Committee
PSB	Project Security Board
AB	Advisory Board
TL	Task Leader
VR	Virtual Reality
WPL	Work Package Leader
AR	Augmented Reality

1. Introduction

This deliverable is divided into 9 chapters, which include the explanation of the stepwise approach for developing the ASSISTANCE training curriculum. The complete description of the ASSISTANCE curriculum and finally the proposed scheduling for the ASSISTANCE Advanced Training sessions.

Training Curriculum defined and Training Curriculum Step by Step Approach explained in the second chapter. the definition of the term “curriculum” is also explained to a better understanding of the following sections. This includes the description of key terms such as; “subject”, “objective”, “prerequisite” and “scheduling” among others.

In chapter 3, subjects of ASSISTANCE Training Curriculum are defined and described. This chapter includes the subjects and their general and specific objectives as well as their preferred evaluation method. This will ensure that the learning objectives are met for the consequent steps of the curriculum. Additionally, each subject and objectives prerequisites are also addressed. Finally, each subject includes a mentor that serves as a subject specialist. The mentor entities for each subject are stated in table 1 of the deliverable at the beginning of section 3. Nevertheless, the persons specialists designated by each mentor entities have not been designated at this stage yet.

Subjects overall Evaluation Criteria are defined in chapter 4. Training methodology applied for ASSISTANCE Training Curriculum derived from D6.1 is explained in chapter 5.

Finally, in chapter 6, ASSISTANCE Training Scheduling is proposed.

At the end of the document, **in Appendix A, Instructions for Accessing the ASSISTANCE Course hosted at the UPVLC Moodle platform for consulting the available contents are included.**

2. Training Curriculum Definition Step by Step Approach

A curriculum is defined as a planned educational experience. This definition encompasses a breadth of educational experiences, from one or more sessions on a specific subject to a year-long course, from a small piece of learning to an entire training program.

A curriculum (or plural curricula), in education, is a study program, that defines the trainee's experiences in a training process. The curriculum describes the sequence of events that will guide the trainers and trainees to the achievement of the educational goals. As such, the curriculum outlines the subjects, the objectives and the necessary evaluating processes to achieve them. Additionally, it may incorporate the interaction between trainees and trainers as well as the content, materials and resources.

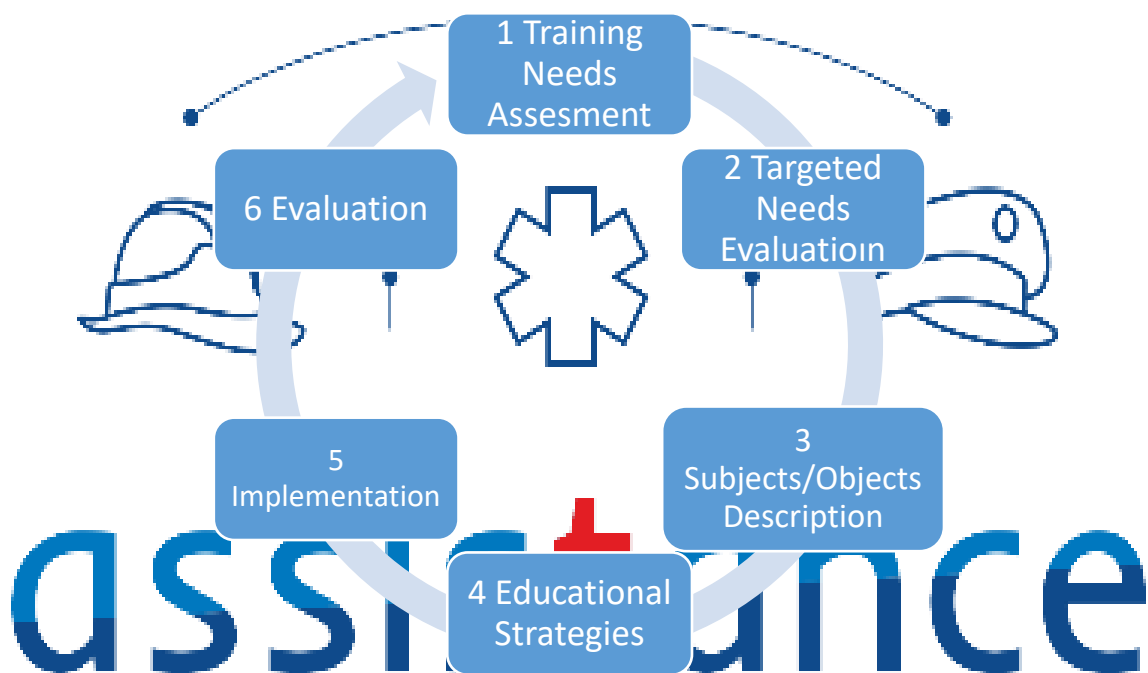


Figure 1 ASSISTANCE Curriculum Definition Step by Step Approach

The deliverable, D6.2 “Training curriculum development and scheduling”, starts with the third step of the ASSISTANCE training development, as seen in Figure 1. It aims to define the training curriculum.

The literature review, surveys and group discussions in the writing phases of the ASSISTANCE proposal helped to build the Training Needs Assessment as the first step of the ASSISTANCE curriculum development.

D6.2 Training Curricula development & Scheduling

Targeted Needs Evaluation step which points methodology covered in D6.1 Training methodology and evaluation criteria definition.

The curriculum will include several subjects that will cover all the necessary learning aspects for the different ASSISTANCE first responders' organizations (ambulance staff, firefighters and police) that will test the Advanced VR Training Platforms. Additionally, the curriculum covers also the educational strategies, implementation (scheduling) and evaluation of the subjects. Evaluation step will provide feedback to ensure the achievements of the training objectives and the trainees knowledge acquisition for being able to use the ASSISTANCE VR Training Platforms properly.

The Curriculum has to include the following topics

- Number of subjects (the subjects that are going to be taught)
- Order of the subjects
- Duration of each subject
- Mentor of each subject (the subject specialist)

As such the whole ASSISTANCE training curriculum developed in T6.2 covers eight subjects, organized considered the pre-requisites needed for each subject and a gradual increase in the difficulty and complexity.

Additionally, each subject has a total duration determined according to the time needed to go through all the material, the exercises and to conduct the evaluation. This is necessary to build the curricula schedule. Finally, each subject has a mentor, or subject specialist, that is the designated point of contact for concepts that the main trainer could not handle. The idea is for the main trainer to gather the questions that he or she cannot solve and ask the specialist for help once a week if needed.

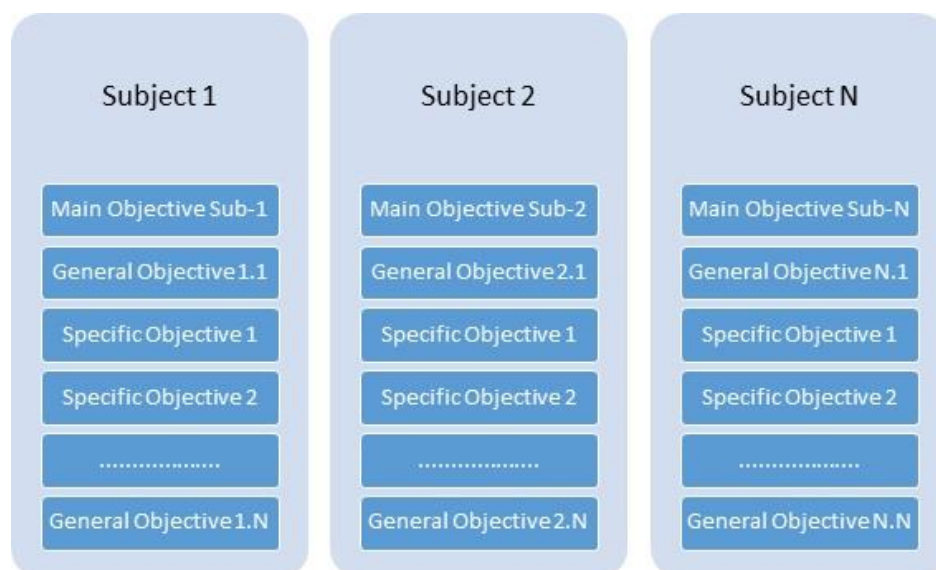


Figure 2 Definition of a subject as Main, General and Specific objectives

Figure 2 shows the composition of a subject. A subject is divided into several types of objectives. The main objective of the subject needs the accomplishment of the different general objectives of the subject for being achieved. They encompass, as the name suggests, general topics of the subject and there can be as many as required. For example, in a Mathematics subject, the main objective is that the student reaches all necessary mathematical concepts, then a general objective could be “Learn basic Algebra”.

Then, each general objective is subdivided into specific objectives. Specific objectives are designed to specify only one specific training goal. As in the case of general objectives, there can be as many as needed to achieve the general objective. Following the Mathematics example, a specific objective will be “Learn to add two numbers”.

Here the necessary additional knowledge to understand the topic is determined. For example, in case of the specific objective “Learn to multiply two numbers” first the student will need to “Learn to add two numbers”.

Finally, each specific objective has a preferred evaluation method employed to measure if the educational goals have been achieved. For example, exercises will be the best method to test if the student knows how to add or multiply numbers.

It is important to note that in the following sections of the document it is stated that subjects 6 to 8 will be performed during the project demonstration pilots (e.g. subject 6 during pilot 1 (in Turkey), subject 7 during pilot 2 (in The Netherlands) and subject 8 during pilot 3 (in Spain)).

It is foreseen that each project pilot will have a two days duration. For example, the first pilot demonstration to be performed in Turkey.

During the first day, the FRs selected as trainees will perform the training sessions in a class room with computers. In this session the trainees will perform the scenarios described in subject 4 for pilot 1 (points 3.2.6.4, 3.2.6.4, 3.2.6.4).

These descriptions stated in subject 4 are for giving the trainees an idea of the scenarios they will have to face in the next practical subjects.

During the second day of the pilot the consortium will perform the technical demo on AAHD training facilities with the drones, robots, ambulances and software systems.

3. ASSISTANCE Training Curriculum

3.1. Subject Definition

This section covers the ASSISTANCE Training Curriculum description. The defined curriculum is composed of 8 Subjects that can be seen in the following table.

No.	Subject Name	Prerequisite	Mentor (Subject Specialist)	Mentor (Partner)
1	Background Knowledge		TBD	AAHD
2	ASSISTANCE Virtual Reality Platforms	Subject 1	TBD	UPVLC
3	ASSISTANCE Virtual Reality Platforms Usage	Subject 1 – 2	TBD	CNBOP
4	ASSISTANCE Virtual Reality Scenarios	Subject 1 – 3	TBD	IFV
5	ASSISTANCE Simple Virtual Reality Scenario	Subject 1 – 4	TBD	UPVLC/IFV/CNBOP
6	ASSISTANCE First Pilot Virtual Reality Scenario	Subject 1 – 5	TBD	UPVLC/IFV/CNBOP
7	ASSISTANCE Second Pilot Virtual Reality Scenario	Subject 1 - 6	TBD	UPVLC/IFV/CNBOP
8	ASSISTANCE Third Pilot Virtual Reality Scenario	Subject 1 – 7	TBD	UPVLC/IFV/CNBOP

Table 1 ASSISTANCE Training subjects

Table 1 shows the eight subjects that have been identified and defined for the ASSISTANCE training. They can be divided into four parts.

- The first one will handle the necessary background knowledge on VR issues that will help the trainees to continue with the next part of the training (Subject 1).
- Then, the second part comprises all the subjects that describe the ASSISTANCE Virtual Reality Platforms and their usage (Subject 2-3).
- The third part is composed of the ASSISTANCE Virtual Reality Scenarios description in Subject 4. These virtual scenarios described in this subject will be performed by the trainees through the different VR platforms available in the consortium during subjects 5 to 8.
- Finally, the four part, will provide the performance of ASSISTANCE Scenarios described in subject 4 through different training sessions (Subjects 5-8).

Each subject theoretical subject (1 to 4) is composed of several lessons. These lessons include the general and specific objectives of each subject.

3.2. Subjects Description

3.2.1. Subject 1: Background Knowledge

This subject includes all the minimum background knowledge that is required to understand Virtual Reality, Augmented Reality and Mixed Reality concepts. For example, definitions, examples, online VR platforms for the general public and specific training applications that are currently available for being used for FRs.

In the following table is described the different lessons that compose subject 1 according to the Moodle subject structure along with its prerequisites and evaluation method used.

No.	Subject Content	Prerequisites	Evaluation method
1.L0	Lesson Introduction	None for subject 1	Review Quiz for subject 1
1.L1	Virtual reality concept	None for subject 1	Review Quiz for subject 1
1.L2	Virtual reality open platforms (Gaming)	None for subject 1	Review Quiz for subject 1
1.L3	Training through Virtual reality platforms.	None for subject 1	Review Quiz for subject 1
1.L4	FRs training using Virtual reality platforms	None for subject 1	Review Quiz for subject 1

Table 2 Subject 1 general content description

3.2.1.1. Subject Objectives

The main objective to this subject is to be the first step of the step-wise approach followed by the consortium in the FRs training process, giving them general knowledge, concepts on VR and a state of the art of the current online platforms and training applications available for different environments.

This subject will give the FR general knowledge on VR that will be useful for them once they study the following subjects, which offers more concrete and complex content and knowledge on different use of VR.

For achieving this main objective, the following general objectives need to be accomplished.

3.2.1.1.1. General Objective 1.1 To learn VR general concepts

No.	Specific Objectives	Prerequisites	Evaluation method
1	To know what is virtual reality		Review Quiz for subject 1
2	To know Main differences among Virtual Reality, Augmented Reality and Mixed Reality		Review Quiz for subject 1
3	To know how VR is really achieved		Review Quiz for subject 1

Table 3 Specific objectives for accomplishing general objective 1.1

3.2.1.1.2. General Objective 1.2: To know the main available online VR platforms

No.	Specific Objectives	Prerequisites	Evaluation method
1	To know what is MineCraft platform		Review Quiz for subject 1
2	To know what is IMVU platform		Review Quiz for subject 1
3	To know what is Second Life platform		Review Quiz for subject 1
4	To know what is Active Worlds platform		Review Quiz for subject 1

Table 4 Specific objectives for accomplishing general objective 1.2

3.2.1.1.3. General Objective 1.3: To learn about the training through VR platforms

No.	Specific Objectives	Prerequisites	Evaluation method
1	To know how VR is used for training		Review Quiz for subject 1
2	To know what are the variety of VR training applications		Review Quiz for subject 1
3	To know what would be the main benefits of using VR for training		Review Quiz for subject 1

Table 5 Specific objectives for accomplishing general objective 1.3

3.2.1.1.4. General Objective 1.4: To learn about the VR platforms for training FRs

No.	Specific Objectives	Prerequisites	Evaluation method
1	To know some of the main VR platforms for training different kind of FRs organizations		Review Quiz for subject 1

Table 6 Specific objectives for accomplishing general objective 1.4

3.2.1.2. Subject Contents Description

This subject is composed of four lessons, which start giving the trainees general concepts on VR and different types of use of VR applications (e.g. entertainment, training, etc).

This subject will put the basis for the trainees can go deeper into the VR understanding and finally using real VR training platforms provided by different partners that compose the ASSISTANCE VR training network.

3.2.1.2.1. Virtual reality concept

In this first lesson, the trainee will learn the basic and general concepts on VR. Also, in this lesson differences among virtual, mixed and augments reality will be stated for clarifying these concepts to the trainee. Finally, some general technical concepts of how VR is produced will be exposed.

3.2.1.2.2. Virtual reality open platforms

In this lesson, the main online VR platforms for different purposes will be described in order to give to the trainee a basic stated of the art on the available VR environments on the internet.

3.2.1.2.3. General introduction to the training through VR platforms/applications

In this third lesson, more specific use of the VR technology for training different disciplines has been described.

This lesson wants to put the focus on the large number of possibilities that offer the VR technology for training different professional for increasing their skills and capabilities in their jobs. Different examples of applications for training different disciplines have been described.

3.2.1.2.4. Specific Training of FRs using VR

Finally, the fourth lesson wants to put focus even more on the use of VR technology for training showing specific VR application for training FRs in different environments. This final lesson will pave the way to the trainees for studying in subject 3, the description of the real VR platforms that they will use in the final subjects (5-8) of this curriculum.

3.2.1. General Remarks

The whole content described in the previous sections is available in the different lessons of subject 1 at the ASSISTANCE Training Moodle server.

<https://moodle.satrd.dcom.upv.es/?redirect=0>

In order to do not increase the deliverable size duplicating the contents already stated in the ASSISTANCE Training Moodle server, some screenshots showing this content are included here.

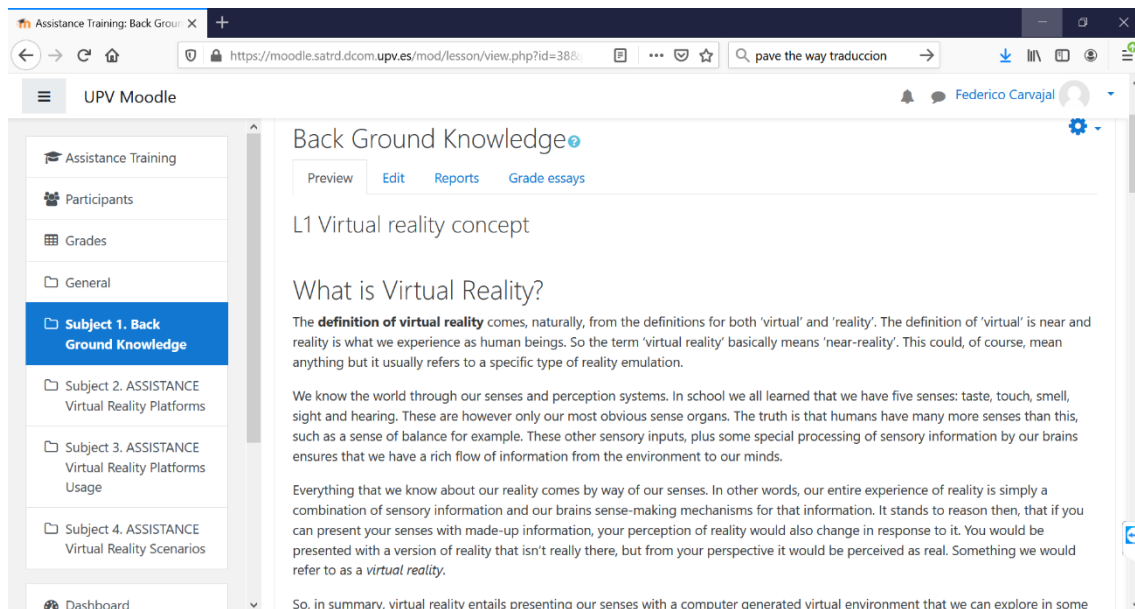


Figure 3 Screenshot showing Subject 1 content for VR general concepts description in the ASSISTANCE Training Moodle server

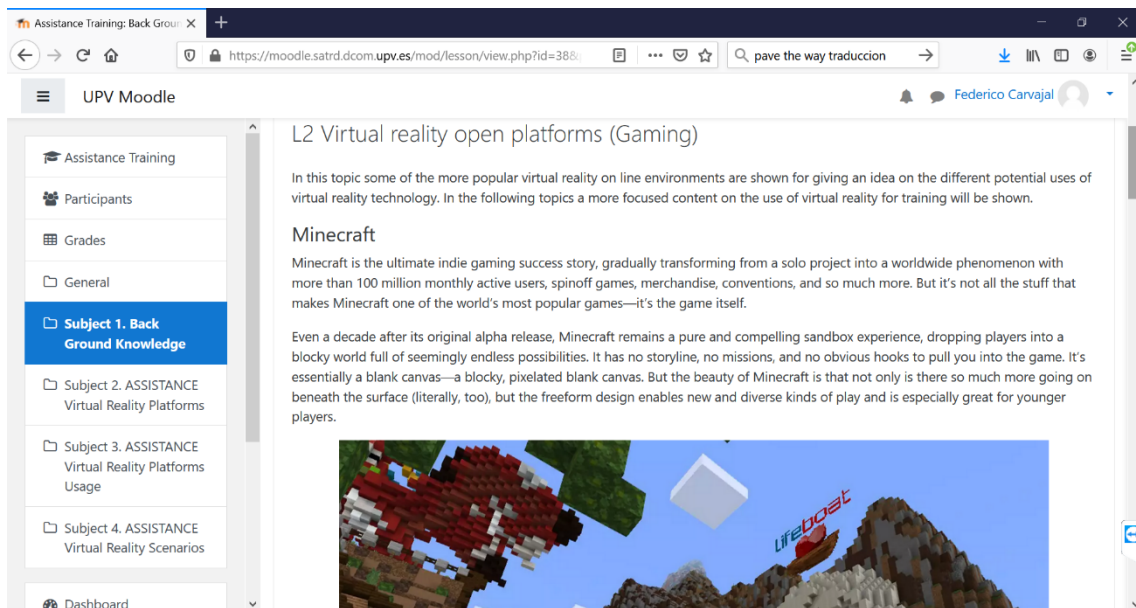


Figure 4 Screenshot showing Subject 1 content for online VR platforms description in the ASSISTANCE Training Moodle server

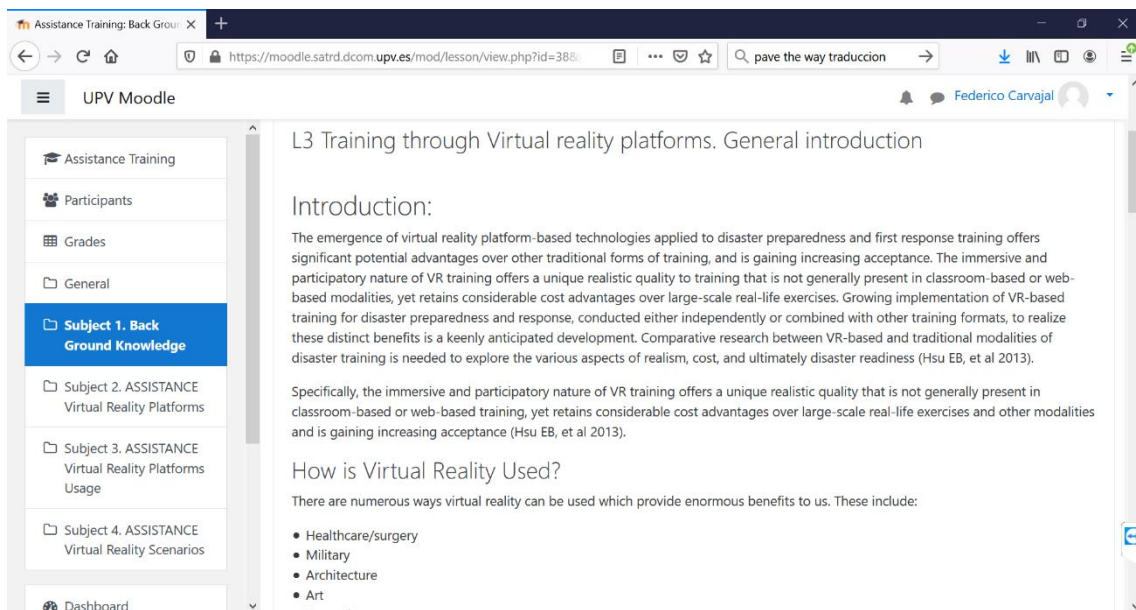


Figure 5 Screenshot showing Subject 1 content for training VR platforms description in the ASSISTANCE Training Moodle server

D6.2 Training Curricula development & Scheduling

The screenshot shows a Moodle course page for 'Assistance Training'. The main content area is titled 'L4 FRs training using Virtual reality platforms'. Below the title, there is a sub-heading 'VR inventions for training first responders'. The text discusses how VR and AR are used in training first responders, mentioning experts like Roham Rahmanian and Kip Kokinakis. The left sidebar contains a navigation menu with the following items: Assistance Training, Participants, Grades, General, Subject 1. Back Ground Knowledge (highlighted), Subject 2. ASSISTANCE Virtual Reality Platforms, Subject 3. ASSISTANCE Virtual Reality Platforms Usage, Subject 4. ASSISTANCE Virtual Reality Scenarios, and Dashboard.

Figure 6 Screenshot showing Subject 1 content for specific VR platforms for training FRs description in the ASSISTANCE Training Moodle server

3.2.2. Subject 2 ASSISTANCE Virtual Reality Platforms (UPVLC)

Once the background knowledge on virtual reality (VR) has been introduced in subject 1, in subject 2 the available VR platforms in the consortium will be described. This way the trainees will have an overall description of each the VR platforms they are going to use during the training exercises before to study the manuals and/or explicative videos in subject 3, which will allow starting using these VR platforms. This progressive introduction in the VR applications and available platforms form part of the step-wise approach followed in the whole training curricula development.

In the following table is described the different lessons that compose subject 2 along with its prerequisites and evaluation method used.

No.	Subject Content	Prerequisites	Evaluation method
2.L0	Lesson Introduction	To have passed Subject 1 Review Quiz	Review Quiz for subject 2
2.L1	UPVLC Virtual Reality Platform Description	To have passed Subject 1 Review Quiz	Review Quiz for subject 2
2.L2	IFV Virtual Reality Platform Description	To have passed Subject 1 Review Quiz	Review Quiz for subject 2
2.L3	CNBOP Virtual Reality Platform Description	To have passed Subject 1 Review Quiz	Review Quiz for subject 2

Table 7 Subject 2 general content description

3.2.2.1. Subject Objectives

3.2.2.1.1. Main objective

The main objective for a subject is to give to the trainees an overall description of the 3 VR platforms available in the consortium.

Once this main subject 2 objective has been stated, the general and specific objectives of subject 2 that will help for accomplishing the above-mentioned main objective will be described in the following sub-sections.

3.2.2.1.2. General objective 2.1: Description of UPVLC VR platform.

No.	Specific Objectives	Prerequisites	Evaluation method
1.	To describe SIMTAC use/purpose	To have passed Subject 1 Review Quiz	Review Quiz for subject 2
2	To provide basic technical information on SIMTAC platform	To have passed Subject 1 Review Quiz	Review Quiz for subject 2

D6.2 Training Curricula development & Scheduling

3	To describe real courses for FRs performed through SIMTAC	To have passed Subject 1 Review Quiz	Review Quiz for subject 2
----------	--	---	---------------------------

Table 8 Specific objectives for accomplishing general objective 2.1

3.2.2.1.3. General objective 2.2: Description of IFV VR platform.

No.	Specific Objectives	Prerequisites	Evaluation method
1.	To describe ADMS platform characteristics	To have passed Subject 1 Review Quiz	Review Quiz for subject 2
2	To describe ADMS platform training objectives	To have passed Subject 1 Review Quiz	Review Quiz for subject 2
3	To describe briefly ADMS technical issues	To have passed Subject 1 Review Quiz	Review Quiz for subject 2

Table 9 Specific objectives for accomplishing general objective 2.2

3.2.2.1.4. General objective 2.3: Description of CNBOP VR platform.

No.	Specific Objectives	Prerequisites	Evaluation method
1.	Possibilities for using the VR platform	To have passed Subject 1 Review Quiz	Review Quiz for subject 2
2	VR platform functionalities description	To have passed Subject 1 Review Quiz	Review Quiz for subject 2

Table 10 Specific objectives for accomplishing general objective 2.3

3.2.2.2. Subject Contents Description

3.2.2.2.1. Description of the UPVLC VR platform (SIMTAC)

In the first lesson of this subject, the trainee will find a general description of the UPVLC VR platform in order to know the platform main characteristics before to start studying how to use the platform in subject 3.

This description contains a general description of the SIMTAC platform, some technical issues related to the platform and a description of real courses performed by UPVLC for FRs (e.g. Valencia firefighting department and NATO CoE counter IED)

3.2.2.2.2. Description of the IFV VR platform (ADMS)

In the first lesson of this subject, the trainee will find a general description of the IFV VR platform in order to know the platform main characteristics before to start studying how to use the platform in subject 3.

This description contains a general description of the ADMS platform, the training objectives of this VR platform and some technical issues related to the platform.

3.2.2.2.3. Description of the CNBOP VR platform

In the first lesson of this subject, the trainee will find a general description of the CNBOP VR platform in order to know the platform main characteristics before to start studying how to use the platform in subject 3.

This description contains a general description of the CNBOP platform training possibilities and also a general description of the platform main functionalities.

3.2.3. General Remarks

The whole content described in the previous sections is available in the different lessons of subject 2 at the ASSISTANCE Training Moodle server.

<https://moodle.satrd.dcom.upv.es/?redirect=0>

In order to do not increase the deliverable size duplicating the contents already stated in the ASSISTANCE Training Moodle server, some screenshots showing this content are included here.

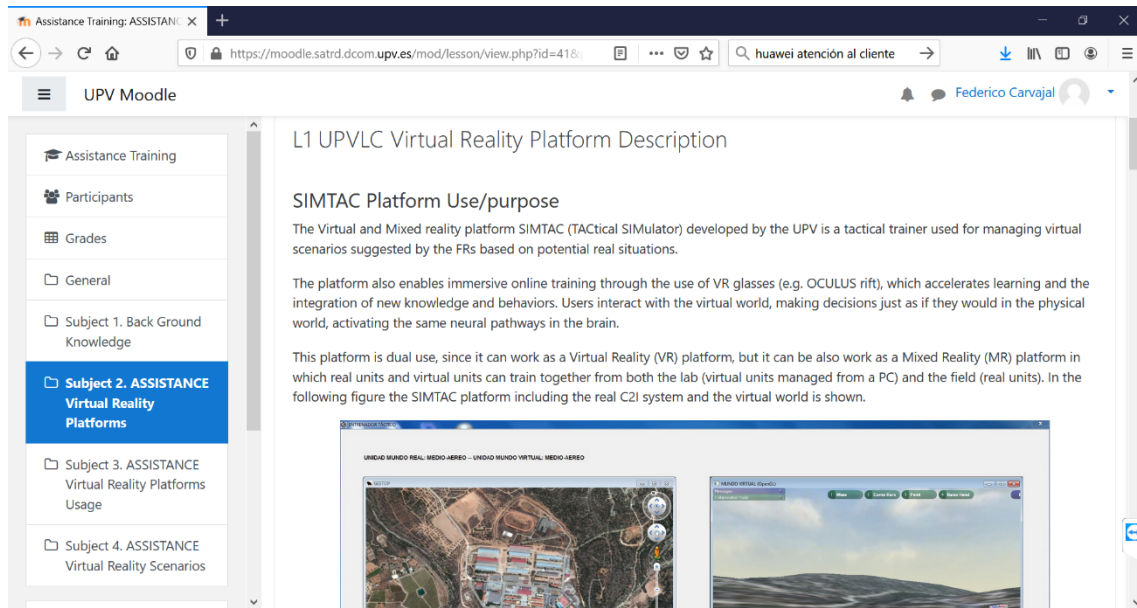


Figure 7 Screenshot showing Subject 2 content for UPVLC platform description in the ASSISTANCE Training Moodle server

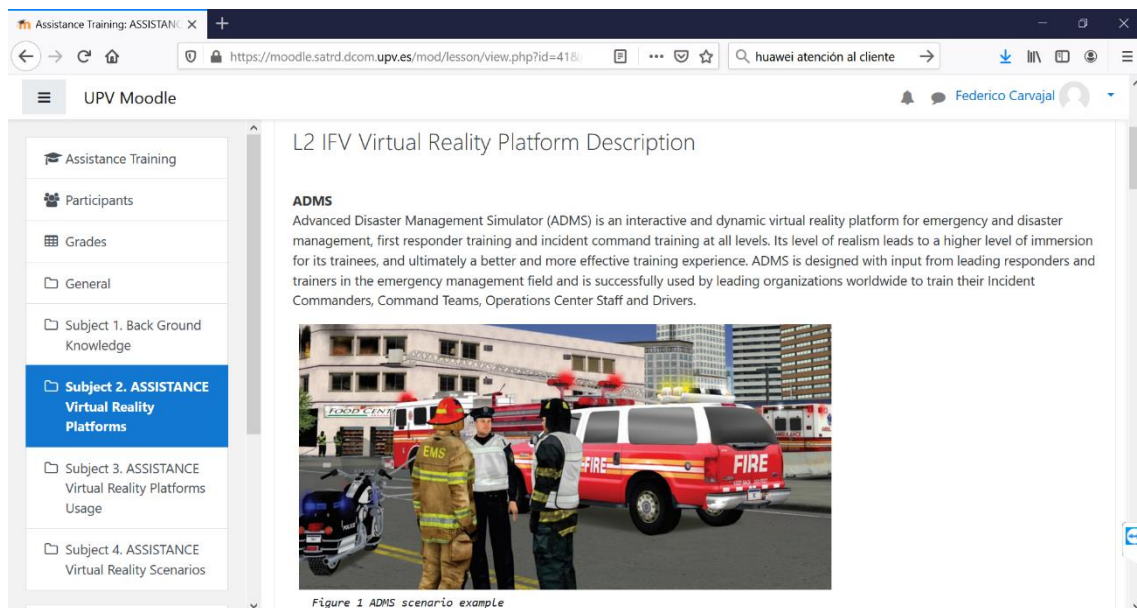


Figure 8 Screenshot showing Subject 2 content for IFV platform description in the ASSISTANCE Training Moodle server

The screenshot shows a web browser window displaying a Moodle course page. The browser's address bar shows the URL: <https://moodle.satrd.com.upv.es/mod/lesson/view.php?id=416>. The page title is "L3 CNBOP Virtual Reality Platform Description". The left sidebar contains a navigation menu with the following items: "Assistance Training", "Participants", "Grades", "General", "Subject 1. Back Ground Knowledge", "Subject 2. ASSISTANCE Virtual Reality Platforms" (highlighted in blue), "Subject 3. ASSISTANCE Virtual Reality Platforms Usage", and "Subject 4. ASSISTANCE Virtual Reality Scenarios". The main content area is titled "Possibilities of use platform, construction of simulation scenarios". It contains a paragraph of text and a bulleted list of elements.

L3 CNBOP Virtual Reality Platform Description

Possibilities of use platform, construction of simulation scenarios

The virtual reality platform provided by CNBOP-PIB is based on the VBS3 environment. It is an environment created for the needs of training of the United States Army. It enables preparation and creation of scenarios with wide application and high level of immersion. One of the most important goals of using the VBS3 system are training in making decisions based on the current simulated situation. An important aspect of the VBS3 application is the possibility of its integration with devices that perform VR functions as well as AR, including google OCULUS and HMD devices. Scenarios are built by usage of the built-in mission editor OME (Offline Mission Editor). Scenarios created using the OME editor as part of consist of the following elements:

- Virtual map mapping the area for example of real Poland (for detailed information on how to build the virtual map, see chapter 2);
- Virtual character models;
- Virtual vehicle models;
- Virtual unmanned aerial vehicle model;
- Virtual models of road infrastructure elements;
- Virtual models of nature elements;
- Virtual models of specific buildings;

Figure 9 Screenshot showing Subject 2 content for CNBOP platform description in the ASSISTANCE Training Moodle server

3.2.4. Subject 3: ASSISTANCE Virtual Reality Platforms Usage (CNBOP)

As the background knowledge on VR functionality and VR platforms has been introduced in subject 1, 2, in subject 3 the dedicated VR platforms usage will be described. In this subject will be shown instructions manual on how to operate with each platform provided in the project. Beside that will be shown some photos and films showing how to use and operate different functionalities necessary to completed training scenario.

In the following table is described the different lessons that compose subject 3 along with its prerequisites and evaluation method used.

No.	Subject Content	Prerequisites	Evaluation method
3.L0	Lesson Introduction	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
3.L1	UPVLC Virtual Reality Platform Usage	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
3.L2	IFV Virtual Reality Platform Usage	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
3.L3	CNBOP Virtual Reality Platform Usage	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3

Table 11 Subject 3 general content description

3.2.4.1. Subject Objectives

3.2.4.1.1. Main objective

The main objective for a subject to is to give to the trainees a manuals/instructions of the 3 VR platforms available in the consortium. Information included in subject 3 allows trainees to properly do assumed in scenarios tasks and functionalities. Trainees will have accurate description of how to use different functions of different platforms and instruction films with different functionalities.

After successfully accomplished this subject, the trainers will be able to use different platforms in their full capacity in prepared by consortium scenarios.

3.2.4.1.2. General objective 3.1: Usage of UPVLC VR platform.

No.	Specific Objectives	Prerequisites	Evaluation method
0.	Get familiar with gear necessary to complete VR scenarios on platform	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
1.	Get familiar with the platform's function of movement	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
2.	Get familiar with the platform's additional action function	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
3.	Get familiar with the platform's function of driving Vehicle	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
4.	Get familiar with the platform's function of managing trainers Inventory	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
5.	Get familiar with the platform's function of teleportation	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
6.	Get familiar with the platform's view change function	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
7.	Get familiar with the platform's gesture Buttons and Menu Buttons	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3

Table 12 Specific objectives for accomplishing general objective 3.1

3.2.4.1.3. General objective 3.1: Usage of IFV VR platform.

No.	Specific Objectives	Prerequisites	Evaluation method
0.	Get familiar with gear necessary to complete VR scenarios on platform	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
1.	Get familiar with the platform's function of movement	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
2.	Get familiar with the platform's function of driving Vehicle	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
3.	Get familiar with the platform's view change function	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3

Table 13 Specific objectives for accomplishing general objective 3.

3.2.4.1.4. General objective 3.1: Usage of CNBOP VR platform.

No.	Specific Objectives	Prerequisites	Evaluation method
1.	Get familiar with gear necessary to complete VR scenarios on platform	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
2.	Get familiar with the platform's function of movement	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
3.	Get familiar with the platform's additional action function	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
4.	Get familiar with gear necessary to complete VR scenarios on platform	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
5.	Get familiar with the platform's interaction with NPC function	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3
6.	Get familiar with the platform's interaction with environment function	To have passed Subject 1 and 2 Review Quiz	Review Quiz for subject 3

Table 14 Specific objectives for accomplishing general objective 2.3

3.2.4.2. Subject Contents

3.2.4.2.1. Usage of the UPVLC VR platform (SIMTAC)

When the trainee gets knowledge from subject 1 and subject 2, can start to learn how to use the platform provided by UPVLC in subject 3. All the necessary content for learning on how to use the UPVLC platform is described in subject 3 at the ASSISTANCE Moodle server. After finishing this subject, the trainee should be able to:

- move their avatar in VR environment
- use and drive different vehicle
- do some additional actions implemented in VR
- use and manage the inventory
- use teleportation tool

3.2.4.2.2. Usage of the IFV VR platform (ADMS)

When the trainee gets knowledge from subject 1 and subject 2, can start to learn how to use the platform provided by IFV in subject 3. All the necessary content for learning on how to use the IFV platform is described in subject 3 at the ASSISTANCE Moodle server. After finishing this subject the trainee should be able to:

- move their avatar in VR environment
- use gear dedicated to platform usage
- use and drive different vehicle

3.2.4.2.3. Usage of the CNBOP VR platform

When the trainee gets knowledge from subject 1 and subject 2, can start to learn how to use the platform provided by CNBOP-PIB in subject 3. All the necessary content for learning on how to use the CNBOP platform is described in subject 3 at the ASSISTANCE Moodle server. After finishing this subject the trainee should be able to:

- move their avatar in VR environment
- use gear dedicated to platform usage
- usability to interact with NPC
- usability to interact with environment

3.2.5. General Remarks

The whole content shortly described in the previous sections is available in the lessons of Subject 3 at the ASSISTANCE Training Moodle server.

<https://moodle.satrd.dcom.upv.es/?redirect=0>

In order to avoid increasing the deliverable size by duplicating the content already stated in the ASSISTANCE Training Moodle server, some screenshots showing this content are included here.

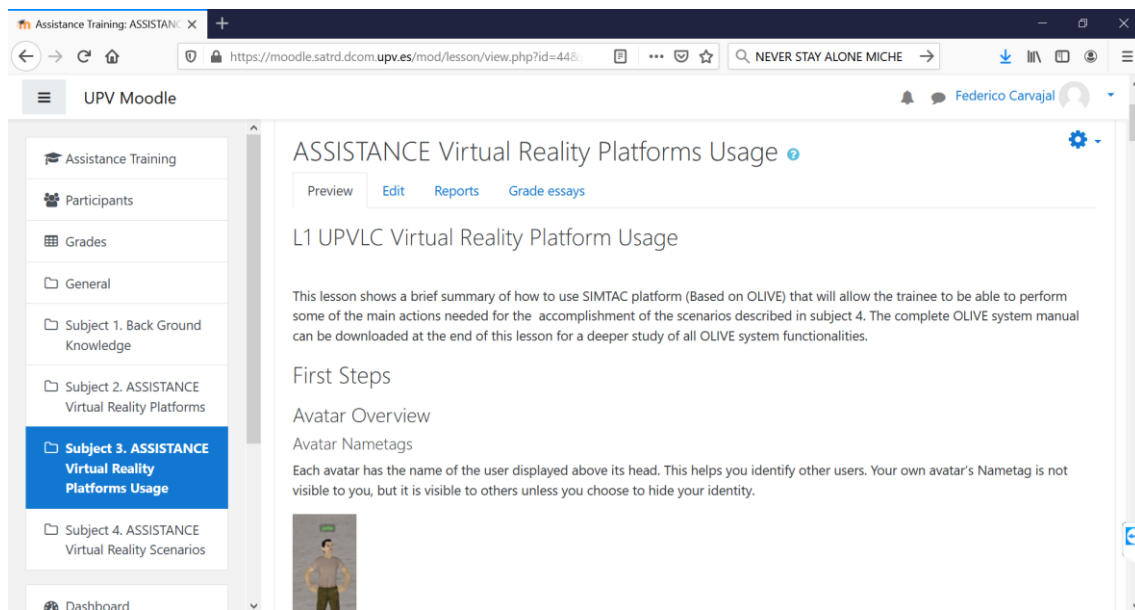
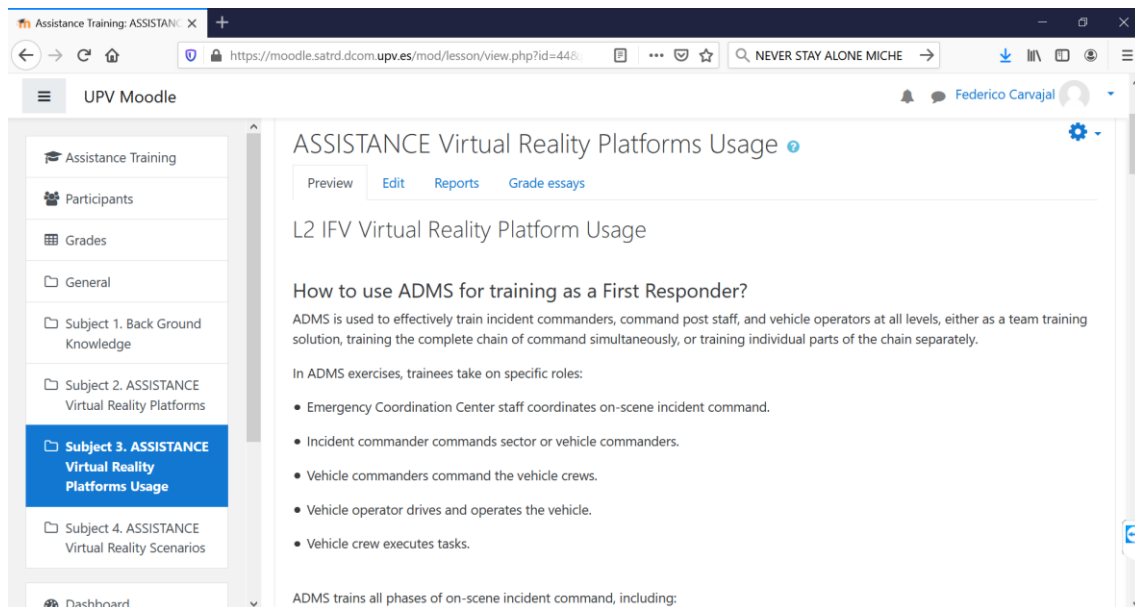


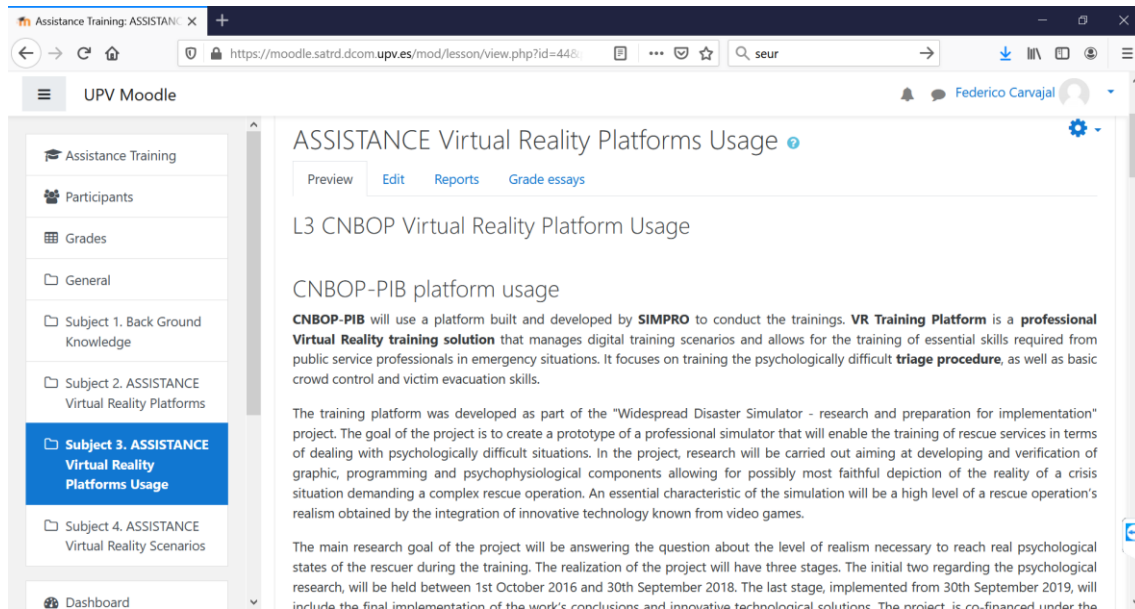
Figure 10 Screenshot showing Subject 3 content for UPVLC platform description in the ASSISTANCE Training Moodle server

D6.2 Training Curricula development & Scheduling



The screenshot shows a Moodle course page titled "ASSISTANCE Virtual Reality Platforms Usage". The left sidebar contains a navigation menu with items: Assistance Training, Participants, Grades, General, Subject 1. Back Ground Knowledge, Subject 2. ASSISTANCE Virtual Reality Platforms, Subject 3. ASSISTANCE Virtual Reality Platforms Usage (highlighted in blue), Subject 4. ASSISTANCE Virtual Reality Scenarios, and Dashboard. The main content area has a sub-header "L2 IFV Virtual Reality Platform Usage" and a section titled "How to use ADMS for training as a First Responder?". The text explains that ADMS is used for training incident commanders, command post staff, and vehicle operators. It lists specific roles in ADMS exercises: Emergency Coordination Center staff, Incident commander, Vehicle commanders, Vehicle operator, and Vehicle crew. The page also includes tabs for Preview, Edit, Reports, and Grade essays.

Figure 11 Screenshot showing Subject 3 content for IFV platform description in the ASSISTANCE Training Moodle server



The screenshot shows a Moodle course page titled "ASSISTANCE Virtual Reality Platforms Usage". The left sidebar is identical to Figure 11, with "Subject 3. ASSISTANCE Virtual Reality Platforms Usage" highlighted. The main content area has a sub-header "L3 CNBOP Virtual Reality Platform Usage" and a section titled "CNBOP-PIB platform usage". The text describes the CNBOP-PIB platform, developed by SIMPRO, used for training public service professionals in emergency situations. It details the project's goal, the development of a professional simulator, and the stages of the project. The page includes tabs for Preview, Edit, Reports, and Grade essays.

Figure 12 Screenshot showing Subject 3 content for CNBOP platform description in the ASSISTANCE Training Moodle server

3.2.6. Subject 4: ASSISTANCE Virtual Reality Scenarios Descriptions

This subject describes the types of scenarios that will be performed using the three VR platforms available within the consortium during the remaining subjects in the curriculum (subjects 5 - 8).

As stated in 6.1 it is important for adult learners to be informed about what they are going to learn, how the learning will be conducted, and why it is important. Subject 4 will clarify the link between what the students can learn and how it can be used in their daily work.

The scenarios comprising Subject 5 are intended to be an introduction to the three VR platforms used in this project. The scenarios comprising Subjects 6 – 8 will be used for training in conjunction with the three demonstrator pilots that will be conducted in Turkey (Subject 6), The Netherlands (Subject 7) and Spain (Subject 8).

The lessons that comprise Subject 4, along with their prerequisites and evaluation methods, are listed in the following table.

No.	Subject Content	Prerequisites	Evaluation method
4.L0	Lesson Introduction	To have passed Subject 3 Review Quiz	Review Quiz for Subject 4
4.L1	Introductory Scenario Descriptions	To have passed Subject 3 Review Quiz	Review Quiz for Subject 4
4.L2	Turkish Pilot Scenario Descriptions	To have passed Subject 3 Review Quiz	Review Quiz for Subject 4
4.L3	Dutch Pilot Scenario Descriptions	To have passed Subject 3 Review Quiz	Review Quiz for Subject 4
4.L4	Spanish Pilot Scenario Descriptions	To have passed Subject 3 Review Quiz	Review Quiz for Subject 4

Table 12 Subject 4 general content description

3.2.6.1. Subject Objectives

3.2.6.1.1. Main objective

The main objective of this subject is to describe the VR scenarios that will be performed through the different VR platforms available in the consortium during the next ASSISTANCE training curricula subjects.

Once this main subject 4 objectives have been stated, the general and specific objectives of subject 4 that will help for accomplishing the above-mentioned main objective will be described in the following sub-sections.

3.2.6.1.2. General objective 4.1: Description of the simple scenarios that will be performed on line in subject 5.

No.	Specific Objectives	Prerequisites	Evaluation method
1.	Description of the simple scenarios to be performed through UPVLC VR platform	To have passed Subject 3 Review Quiz	Review Quiz for subject 4
2	Description of the simple scenarios to be performed through IFV VR platform	To have passed Subject 3 Review Quiz	Review Quiz for subject 4
3	Description of the simple scenarios to be performed through CNBOP VR platform	To have passed Subject 3 Review Quiz	Review Quiz for subject 4

Table 13 Specific objectives for accomplishing general objective 4.2

3.2.6.1.3. General objective 4.2: Description of the scenarios that will be performed in subject 6 during the first project pilot.

No.	Specific Objectives	Prerequisites	Evaluation method
1.	Description of the scenarios to be performed through UPVLC VR platform during the first pilot	To have passed Subject 3 Review Quiz	Review Quiz for subject 4
2	Description of the scenarios to be performed through IFV VR platform during the first pilot	To have passed Subject 3 Review Quiz	Review Quiz for subject 4
3	Description of the scenarios to be performed through CNBOP VR platform during the first pilot	To have passed Subject 3 Review Quiz	Review Quiz for subject 4

Table 14 Specific objectives for accomplishing general objective 4.2

3.2.6.1.4. General objective 4.3: Description of the scenarios that will be performed in subject 7 during the second project pilot.

No.	Specific Objectives	Prerequisites	Evaluation method
1.	Description of the scenarios to be performed through UPVLC VR platform during the second pilot	To have passed Subject 3 Review Quiz	Review Quiz for subject 4

2	Description of the scenarios to be performed through IFV VR platform during the second pilot	To have passed Subject 3 Review Quiz	Review Quiz for subject 4
3	Description of the scenarios to be performed through CNBOP VR platform during the second pilot	To have passed Subject 3 Review Quiz	Review Quiz for subject 4

Table 15 Specific objectives for accomplishing general objective 4.3

3.2.6.1.5. General objective 4.4: Description of the scenarios that will be performed in subject 8 during the third project pilot.

No.	Specific Objectives	Prerequisites	Evaluation method
1.	Description of the scenarios to be performed through UPVLC VR platform during the third pilot	To have passed Subject 3 Review Quiz	Review Quiz for subject 4
2	Description of the scenarios to be performed through IFV VR platform during the third pilot	To have passed Subject 3 Review Quiz	Review Quiz for subject 4
3	Description of the scenarios to be performed through CNBOP VR platform during the third pilot	To have passed Subject 3 Review Quiz	Review Quiz for subject 4

Table 16 Specific objectives for accomplishing general objective 4.4

3.2.7. Subject Contents Description

3.2.7.1. Description of the UPVLC VR scenarios for subject 5

The introductory scenarios proposed by UPVLC for Subject 5 using a remote connection to the UPVLC platform VR are a collection of very simple scenarios that will allow the trainees to get familiar with the platform and be able to use some of its capabilities.

UPVLC has proposed for Subject 5 three individual introductory scenarios: one for police officers, one for firefighters and one for sanitary emergency staff. The fact of having individual scenarios reduces the complexity for the trainees and helps them become familiar with the VR platform capabilities.

3.2.7.2. Description of the IFV VR scenarios for subject 5

The simple scenario proposed by IFV will be performed in subject 5 and its goal for the trainees is to get familiar with ADMS and to be able to use some of its capabilities. The scenario is proposed for police officers, firefighters and sanitary emergency staff.

3.2.7.3. Description of the CNBOP VR scenarios for subject 5

The scenario proposed by CNBOP-PIB to be performed in subject 5 through a remote connection to the platform is a very simple scenario that will allow participants from various services to get acquainted with the platform and be able to use the most important of its capabilities and functions.

The scenario will take place around Franciscan church and monastery grounds in Krakow, Poland. In this scenario, all FRs have their individual goals and tasks, but they will focus mainly on firefighters' operations.

3.2.7.4. Description of the UPVLC VR scenarios for subject 6

A more complex scenario is proposed by UPVLC to be performed in Subject 6 in conjunction with the Turkish pilot. This scenario will be conducted through a remote connection to the UPVLC platform VR. It will allow the trainees to use more capabilities of the VR platform than those used in the Subject 5 scenario.

UPVLC has proposed a unique scenario for police officers, firefighters and sanitary emergency staff. The fact of having a unique scenario adds complexity for the trainees since they will need to work and use the VR platform capabilities in a coordinated manner.

3.2.7.5. Description of the IFV VR scenarios for subject 6

The scenario proposed by IFV for Subject 6 in conjunction with the Turkish pilot is a more complex scenario than the one used in Subject 5. It will allow the trainees to use more capabilities of ADMS and the trainees should complete more complex tasks. The scenario is for police officers, firefighters and sanitary emergency staff.

3.2.7.6. Description of the CNBOP VR scenarios for subject 6

The scenario prepared for subject 6 will take place during a car collision at the intersection in Wadowice. The proposed scenario will be able to be implemented by various rescue services (fire brigade, police, medical services). It will be a more elaborate scenario with greater functionality compared to the first scenario, among others due to the use of a drone with a camera.

In this scenario, all FRs have their individual goals and tasks, but the focus will be mainly on paramedic operations.

3.2.7.7. Description of the UPVLC VR scenarios for subject 7

The scenario proposed by UPVLC for Subject 7 in conjunction with the Dutch pilot is an extension of the Subject 6 scenario that will allow the trainees to use more capabilities

of the VR platform than those used in Subject 6 scenario. This scenario will be conducted through a remote connection to the UPVLC platform VR.

UPVLC has proposed for Subject 7 a unique scenario for police officers, firefighters and sanitary emergency staff. In addition to the VR capabilities of the platform, the Mixed Reality (MR) capabilities will be tested.

The fact of having MR capabilities in this scenario implies the participation of real units deployed in the field along with virtual units in the training room, all of them working in a coordinated manner in the same VR environment.

3.2.7.8. Description of the IFV VR scenarios for subject 7

The scenario proposed by IFV for Subject 7 in conjunction with the Dutch pilot is an extension of the scenario in Subject 6. It will allow the trainees to use more capabilities of ADMS.

IFV has proposed for Subject 7 one scenario for police officers, firefighters and sanitary emergency staff. Within this scenario, the first responders can communicate with each other.

3.2.7.9. Description of the CNBOP VR scenarios for subject 7

The script for this subject takes place in a mountain area around a restaurant that was attacked by an unknown perpetrator with a gun. The scenario for this subject takes place in a mountain area around a restaurant that was attacked by an unknown offender with a gun. The scenario is more complex and requires more execution than the operation script for subject 6.

In this scenario, all FRs have their individual goals and tasks, but the focus will be mainly on police operations.

3.2.7.10. Description of the UPVLC VR scenarios for subject 8

The scenario proposed by UPVLC for Subject 8 in conjunction with the Spanish pilot is an extension of the Subject 7 scenario that will allow the trainees to again use the main capabilities of the VR platform. This scenario will be conducted through a remote connection to the UPVLC platform VR.

UPVLC has proposed for Subject 8 a unique scenario for police officers, firefighters and sanitary emergency staff. Both the VR and MR capabilities will be tested again with more real units than in the scenario performed in Subject 7.

The real units deployed in the field along with virtual units in the training room will again work together in a coordinated manner in the same VR environment.

3.2.7.11. Description of the IFV VR scenarios for subject 8

The scenario proposed by IFV for Subject 8 in conjunction with the Spanish pilot is an extension of the Subject 7 scenario that will allow the trainees to again use the main capabilities of ADMS.

IFV has proposed for Subject 8 one scenario for police officers, firefighters and sanitary emergency staff. Within this scenario, the first responders can communicate with each other. The real units deployed in field along with virtual units in the training room will work together in a coordinated manner within ADMS.

3.2.7.12. Description of the CNBOP VR scenarios for subject 8

The script for this subject takes place in an airport. During the transport of passengers, a bus collided with a stationary plane. Some people are injured and it is necessary to secure the area around the accident. The scenario is more complex and requires more execution than the operation script for the subject 7.

In this scenario, all FRs have their individual goals and tasks.

3.2.8. General Remarks

The whole content shortly described in the previous sections is available in the lessons of Subject 4 at the ASSISTANCE Training Moodle server.

<https://moodle.satrd.dcom.upv.es/?redirect=0>

In order to avoid increasing the deliverable size by duplicating the content already stated in the ASSISTANCE Training Moodle server, some screenshots showing this content are included here.

D6.2 Training Curricula development & Scheduling

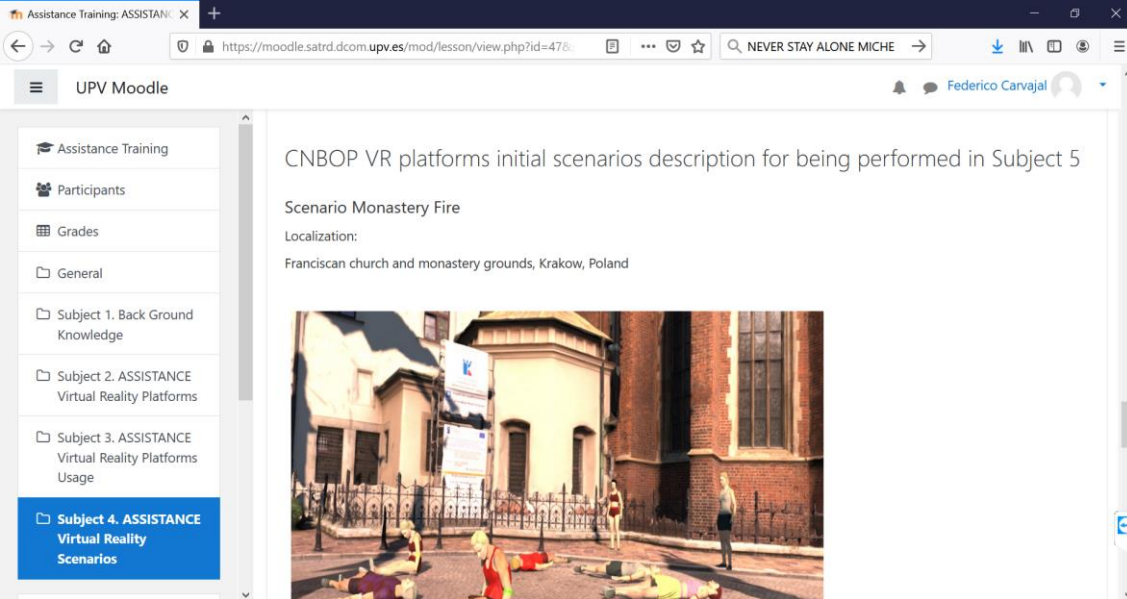
The screenshot shows a Moodle course page for 'UPV Moodle'. The left sidebar contains a navigation menu with items: Assistance Training, Participants, Grades, General, Subject 1. Back Ground Knowledge, Subject 2. ASSISTANCE Virtual Reality Platforms, Subject 3. ASSISTANCE Virtual Reality Platforms Usage, and Subject 4. ASSISTANCE Virtual Reality Scenarios (highlighted in blue). The main content area is titled 'ASSISTANCE Virtual Reality Platforms Scenarios Description' and includes tabs for Preview, Edit, Reports, and Grade essays. The content is organized into sections: 'L1 Initial Scenarios Description', 'UPVLC VR platforms initial scenarios description for being performed in Subject 5', and 'Subject 5 Police Officers Scenario description'. The scenario description includes an emergency call, arrival at the industrial area, inspection, detonation of an artefact, and a terrorist being located and taken back to the police station.

Figure 13 Screenshot showing Subject 4 content for UPVLC initial scenarios in the ASSISTANCE Training Moodle server

The screenshot shows a Moodle course page for 'UPV Moodle'. The left sidebar contains a navigation menu with items: Assistance Training, Participants, Grades, General, Subject 1. Back Ground Knowledge, Subject 2. ASSISTANCE Virtual Reality Platforms, Subject 3. ASSISTANCE Virtual Reality Platforms Usage, and Subject 4. ASSISTANCE Virtual Reality Scenarios (highlighted in blue). The main content area is titled 'IFV VR platforms scenarios description for being performed in Subject 5'. The content includes a section for 'ADMS scenario: kitchen fire' and detailed information about the emergency call, background, firefighter, police, and ambulance. At the bottom of the page, there is a small image of a house.

Figure 14 Screenshot showing Subject 4 content for IFV initial scenarios in the ASSISTANCE Training Moodle server

D6.2 Training Curricula development & Scheduling



Assistance Training: ASSISTANCE x

UPV Moodle

Assistance Training

Participants

Grades

General

Subject 1. Back Ground Knowledge

Subject 2. ASSISTANCE Virtual Reality Platforms

Subject 3. ASSISTANCE Virtual Reality Platforms Usage

Subject 4. ASSISTANCE Virtual Reality Scenarios

CNBOP VR platforms initial scenarios description for being performed in Subject 5

Scenario Monastery Fire

Localization:
Franciscan church and monastery grounds, Krakow, Poland




Figure 15 Screenshot showing Subject 4 content for CNBOP initial scenarios in the ASSISTANCE Training Moodle server

3.2.9. Subject 5: ASSISTANCE Simple Virtual Reality Scenarios

In this subject, the simplest VR scenarios described in sections 3.2.6.1, 3.2.6.2 and 3.2.6.3 will be performed through remote sessions that will be agreed and scheduled between the FRs participants and the VR platforms providers.

3.2.9.1. Subject Objectives

The main objective of this subject is to perform and pass the VR scenarios described in sections 3.2.6.1, 3.2.6.2 and 3.2.6.3.

Once this main subject 5 objective has been stated, the general and specific objectives of subject 5 will be described in the following sub-sections.

3.2.9.1.1. General objective 5.1: To perform and pass UPVLC scenario proposed in section 3.2.6.1.

No.	Specific Objectives	Prerequisites	Evaluation method
1	Get start to the UPV platform.	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
2	Be able to move the avatar thought keyboard controls.	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
3	Know how to move emergency vehicles.	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
4	Access to the tools from the inventory.	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
5	Use different tools.	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
6	Use teleporting capabilities.	To have passed Subject 4 Review Quiz	Exercise evaluation criteria

Table 17 Specific objectives for accomplishing general objective 5.1

3.2.9.1.2. General objective 5.2: To perform and pass IFV scenario proposed in section 3.2.6.2.

No.	Specific Objectives	Prerequisites	Evaluation method
1	Get start to the IFV VR platform via skype or similar	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
2	Being able to give directional commands to the teacher to walk through the 3D environment	To have passed Subject 4 Review Quiz	Exercise evaluation criteria

3	Being able to give directional commands to the teacher to move emergency vehicles through the 3D environment	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
4	Being able to give commands to the teacher to get the crews of the emergency vehicles to execute them	To have passed Subject 4 Review Quiz	Exercise evaluation criteria

Table 18 Specific objectives for accomplishing general objective 5.2

3.2.9.1.3. General objective 5.3: To perform and pass CNBOP scenario proposed in section 3.2.6.3.

No.	Specific Objectives	Prerequisites	Evaluation method
1	Get start to work with platform.	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
2	Be able to move the avatar in a virtual environment	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
3	Evaluate condition of victims (triage).	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
4	Decide what to do with victims.	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
5	Move affected people to the safe zone from the danger zone.	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
6	Isolate “emergency area - the zone where rescue operations should take place”	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
7	Control the crowd. Isolate area from by bystanders.	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
8	Be able to train together different FRs organizations in the Virtual world.	To have passed Subject 4 Review Quiz	Exercise evaluation criteria
9	Get start to work with platform.	To have passed Subject 4 Review Quiz	Exercise evaluation criteria

Table 19 Specific objectives for accomplishing general objective 5.1

3.2.9.2. Subject Contents Description

The contents of this subject will be the performance of the subject 5 proposed scenarios through remote connections to each of the VR available platforms according to the scenario description and objectives stated for each subject 5 scenario.

This scenarios performance will take place according the schedule stated in section 6 of this document.

3.2.10. Subject 6: ASSISTANCE First Pilot Virtual Reality Scenarios

In this subject the VR scenarios described in sections 3.2.6.4, 3.2.6.5 and 3.2.6.6 will be performed through remote sessions that will take place during the first pilot demonstration in Turkey.

3.2.10.1. Subject Objectives

The main objective of this subject is to perform and pass the VR scenarios described in sections 3.2.6.4, 3.2.6.5 and 3.2.6.6.

Once this main subject 6 objective has been stated, the general and specific objectives of subject 6 will be described in the following sub-sections.

3.2.10.1.1. General objective 6.1: To perform and pass UPVLC scenario proposed in section 3.2.6.4.

No.	Specific Objectives	Prerequisites	Evaluation method
1	Be able to train together different FRs organizations in the Virtual world.	To have passed Subject 5 scenarios	Exercise evaluation criteria
2	Use virtual radio communications.	To have passed Subject 5 scenarios	Exercise evaluation criteria
3	Know how to move emergency vehicles.	To have passed Subject 5 scenarios	Exercise evaluation criteria
4	Access to the more tools from the inventory.	To have passed Subject 5 scenarios	Exercise evaluation criteria
5	Use different tools.	To have passed Subject 5 scenarios	Exercise evaluation criteria
6	Use teleporting capabilities.	To have passed Subject 5 scenarios	Exercise evaluation criteria

Table 20 Specific objectives for accomplishing general objective 6.1

3.2.10.1.2. General objective 6.2: To perform and pass IFV scenario proposed in section 3.2.6.5.

No.	Specific Objectives	Prerequisites	Evaluation method
1	Be able to train together different FRs organizations in the Virtual world.	To have passed Subject 5 scenarios	Exercise evaluation criteria
2	Use real radio communication procedures	To have passed Subject 5 scenarios	Exercise evaluation criteria

3	Know how to move emergency vehicles.	To have passed Subject 5 scenarios	Exercise evaluation criteria
4	Know how to stabilise the incident	To have passed Subject 5 scenarios	Exercise evaluation criteria
5	Know how to communicate with other First Responders	To have passed Subject 5 scenarios	Exercise evaluation criteria

Table 21 Specific objectives for accomplishing general objective 6.2

3.2.10.1.3. General objective 6.3: To perform and pass CNBOP scenario proposed in section 3.2.6.6.

No.	Specific Objectives	Prerequisites	Evaluation method
1	Use the drone camera to search and observe events.	To have passed Subject 5 scenarios	Exercise evaluation criteria
2	Danger assessment and evacuation of endangered victims or bystanders.	To have passed Subject 5 scenarios	Exercise evaluation criteria
3	Checking for any dangers about the cars like fires, gas tanks, substance leaks.	To have passed Subject 5 scenarios	Exercise evaluation criteria
4	Crowd control; the task is to keep bystanders outside of the perimeter.	To have passed Subject 5 scenarios	Exercise evaluation criteria
5	Recognize and evacuate any victims who have wandered into the crowd, to the safe zone	To have passed Subject 5 scenarios	Exercise evaluation criteria
6	Gather information from bystanders	To have passed Subject 5 scenarios	Exercise evaluation criteria
7	Evaluate condition of victims (triage).	To have passed Subject 5 scenarios	Exercise evaluation criteria
8	Isolate “emergency area”	To have passed Subject 5 scenarios	Exercise evaluation criteria

Table 22 Specific objectives for accomplishing general objective 6.3

3.2.10.2. Subject Contents Description

The contents of this subject will be the performance of the subject 6 proposed scenarios through remote connections to each of the VR available platforms according to the scenario description and objectives stated for each subject 6 scenario. The training session for this subject will take place during the first project pilot demonstration dates.

3.2.11. Subject 7 ASSISTANCE Second Pilot Virtual Reality Scenarios

In this subject, the VR scenarios described in sections 3.2.6.7, 3.2.6.8 and 3.2.6.9 will be performed through remote sessions that will take place during the second pilot demonstration in The Netherlands.

3.2.11.1. Subject Objectives

The main objective of this subject is to perform and pass the VR scenarios described in sections 3.2.6.7, 3.2.6.8 and 3.2.6.9.

Once this main subject 7 objective has been stated, the general and specific objectives of subject 7 will be described in the following sub-sections.

3.2.11.1.1. General objective 7.1: To perform and pass UPVLC scenario proposed in section 3.2.6.7.

No.	Specific Objectives	Prerequisites	Evaluation method
1	Be able to train together different FRs organizations in the Virtual world.	To have passed Subject 6 scenarios	Exercise evaluation criteria
2	Use virtual radio communications.	To have passed Subject 6 scenarios	Exercise evaluation criteria
3	To use Mixed Reality (MR) capabilities of UPVLC VR platform.	To have passed Subject 6 scenarios	Exercise evaluation criteria
4	Participation of one real unit deployed on the field along with virtual units on the training room all of them working in a coordinate manner in the same VR environment	To have passed Subject 6 scenarios	Exercise evaluation criteria

Table 23 Specific objectives for accomplishing general objective 7.1

3.2.11.1.2. General objective 7.2: To perform and pass IFV scenario proposed in section 3.2.6.8.

No.	Specific Objectives	Prerequisites	Evaluation method
1	Be able to train together different FRs organizations in the Virtual world.	To have passed Subject 6 scenarios	Exercise evaluation criteria

2	Use real radio communication procedures	To have passed Subject 6 scenarios	Exercise evaluation criteria
3	Know how to move emergency vehicles.	To have passed Subject 6 scenarios	Exercise evaluation criteria
4	Know how to stabilise the incident	To have passed Subject 6 scenarios	Exercise evaluation criteria
5	Know how to communicate with other First Responders	To have passed Subject 6 scenarios	Exercise evaluation criteria

Table 24 Specific objectives for accomplishing general objective 7.2

3.2.11.1.3. General objective 7.3: To perform and pass CNBOP scenario proposed in section 3.2.6.9.

No.	Specific Objectives	Prerequisites	Evaluation method
1	Use drone camera to search attacker and observe for potential victims whose not known to FRs.	To have passed Subject 6 scenarios	Exercise evaluation criteria
2	Perimeter search and evacuation	To have passed Subject 6 scenarios	Exercise evaluation criteria
3	Conduct preliminary investigation and crowd control	To have passed Subject 6 scenarios	Exercise evaluation criteria
4	Triage the victims	To have passed Subject 6 scenarios	Exercise evaluation criteria
	Gather information from bystanders To have passed Subject 5 scenarios Exercise evaluation criteria	To have passed Subject 6 scenarios	Exercise evaluation criteria

Table 25 Specific objectives for accomplishing general objective 7.3

3.2.11.2. Subject Contents Description

The contents of this subject will be the performance of the subject 7 proposed scenarios through remote connections to each of the VR available platforms according to the scenario description and objectives stated for each subject 7 scenario. The training session for this subject will take place during the second project pilot demonstration dates.

D6.2 Training Curricula development & Scheduling

In this subject performance, MR capabilities will be tested and will allow to one real unit to work together with virtual units controlled from the training room in the same VR environment.

3.2.12. Subject 8 ASSISTANCE Third Pilot Virtual Reality Scenarios

In this subject, the VR scenarios described in sections 3.2.6.10, 3.2.6.11 and 3.2.6.12 will be performed through remote sessions that will take place during the third pilot demonstration in Spain.

3.2.12.1. Subject Objectives

The main objective of this subject is to perform and pass the VR scenarios described in sections 3.2.6.10, 3.2.6.11 and 3.2.6.12.

Once this main subject 8 objective has been stated, the general and specific objectives of subject 8 will be described in the following sub-sections.

3.2.12.1.1. General objective 8.1: To perform and pass UPVLC scenario proposed in section 3.2.6.10.

No.	Specific Objectives	Prerequisites	Evaluation method
1	Be able to train together different FRs organizations in the Virtual world.	To have passed Subject 7 scenarios	Exercise evaluation criteria
2	To use Mixed Reality (MR) capabilities of UPVLC VR platform.	To have passed Subject 7 scenarios	Exercise evaluation criteria
3	Participation of more than one real unit deployed on the field along with virtual units on the training room all of them working in a coordinate manner in the same VR environment	To have passed Subject 7 scenarios	Exercise evaluation criteria

Table 26 Specific objectives for accomplishing general objective 8.1

3.2.12.1.2. General objective 8.2: To perform and pass IFV scenario proposed in section 3.2.6.11.

No.	Specific Objectives	Prerequisites	Evaluation method
1	Be able to train together different FRs organizations in the Virtual world.	To have passed Subject 7 scenarios	Exercise evaluation criteria
2	Use real radio communication procedures	To have passed Subject 7 scenarios	Exercise evaluation criteria

3	Know how to move emergency vehicles.	To have passed Subject 7 scenarios	Exercise evaluation criteria
4	Know how to stabilise the incident	To have passed Subject 7 scenarios	Exercise evaluation criteria
5	Know how to communicate with other First Responders	To have passed Subject 7 scenarios	Exercise evaluation criteria

Table 27 Specific objectives for accomplishing general objective 8.2

3.2.12.1.3. General objective 8.3: To perform and pass CNBOP scenario proposed in section 3.2.6.12.

No.	Specific Objectives	Prerequisites	Evaluation method
1	Danger assessment and perimeter search.	To have passed Subject 7 scenarios	Exercise evaluation criteria
2	Crowd control and information gathering.	To have passed Subject 7 scenarios	Exercise evaluation criteria
3	Triage the victims (paramedics with help of firefighters).	To have passed Subject 7 scenarios	Exercise evaluation criteria
4	Search the area for any victims and to evacuate them to a safe zone where they can receive medical help.	To have passed Subject 7 scenarios	Exercise evaluation criteria
	Secure of damaged vehicles and the nearby area	To have passed Subject 7 scenarios	Exercise evaluation criteria

Table 28 Specific objectives for accomplishing general objective 8.3

3.2.12.2. Subject Contents Description

The contents of this subject will be the performance of the subject 8 proposed scenarios through remote connections to each of the VR available platforms according to the scenario description and objectives stated for each subject 8 scenarios. The training session for this subject will take place during the third project pilot demonstration dates. In this subject performance, as in subject 7, MR capabilities will be tested and will allow to real units to work together with virtual units controlled from the training room in the same VR environment.

4. Subject Evaluation Criteria

As stated before in this document, the ASSISTANCE training curricula is composed of several subjects, which have different contents types. The first four subjects are more theoretical and will be taught through an online learning platform (Moodle) hosted by UPVLC.

The last four curricula subjects (5 to 8) will be more practical and will be taught through VR reality scenarios performed in the three VR platforms available in the consortium.

Due to the subject content differences (theoretical and practical), there will be also differences in the evaluation criteria assigned to each type of subject. The criteria will be based on documented legal requirements, standards, and practices as well as opinions collected.

4.1. Evaluation criteria for the first 4 theoretical subjects

For the first four subjects, which will be taught through the Moodle server, the Moodle evaluation features are used for evaluation. A Quiz Review for each subject is the main tool for evaluating the knowledge acquisition of the trainees. This Quiz Review is composed of 10 questions taken automatically and randomly by the system from a predefined question bank. The questions will be based on the objectives (main, general, specific) of each subject. The quizzes will determine whether the learners understand what they are expected to learn, how the learning will be conducted, why it is important, and how the learning outcomes can be applied to their daily work.

The evaluation criteria applied to all subject quizzes is that the minimum grade to pass each quiz must be a score equal to or higher than 8 correct answers. This grade configuration in the Moodle platform is described in the next figure.

D6.2 Training Curricula development & Scheduling

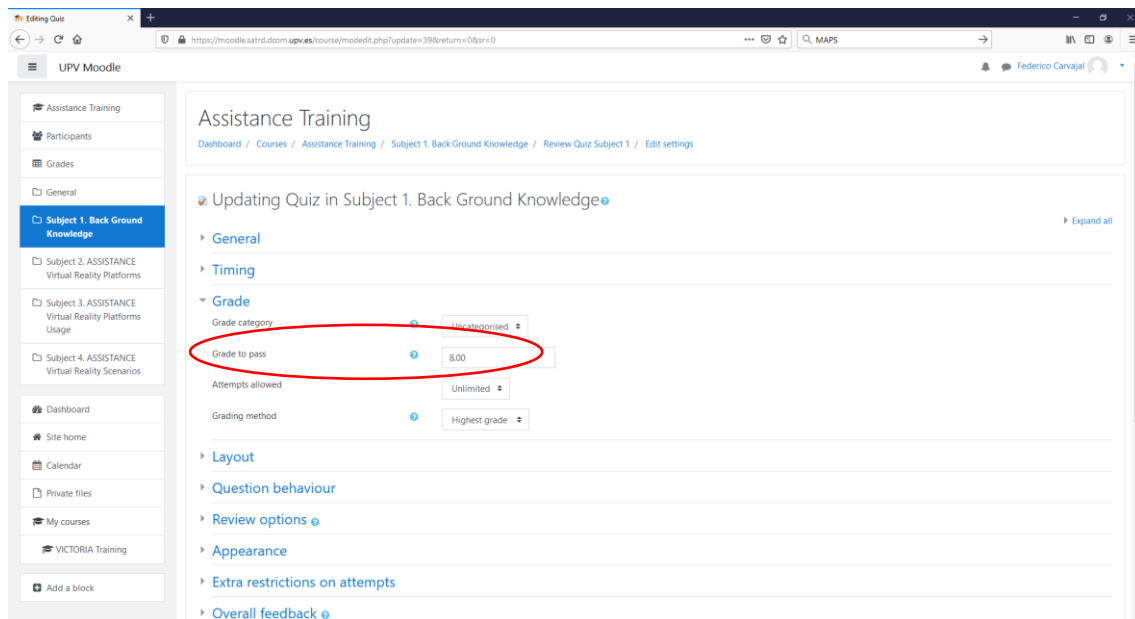


Figure 16 Grade to pass configuration

This evaluation criteria also implies that the trainee will not be able to access the next subject unless a passing grade is obtained for the current Quiz Review. This restriction has been also configured in the Moodle platform in order to ensure the knowledge acquisition of all subjects.

This restriction for accessing the next subject is shown in the following figure that shows the outline of the ASSISTANCE course built on the Moodle platform including its four subjects.

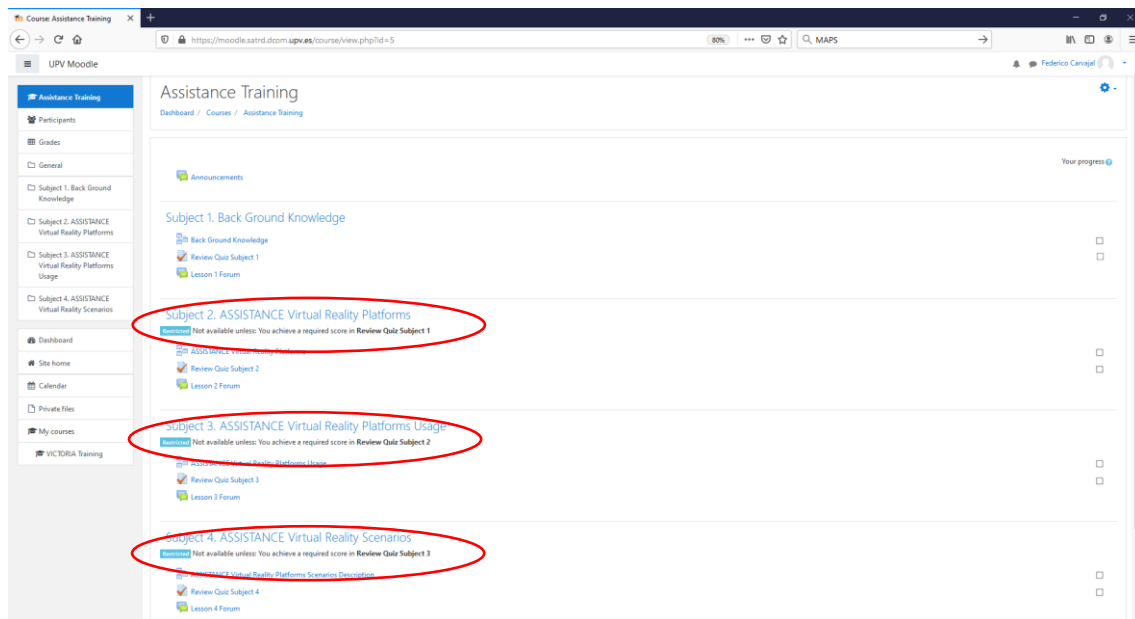


Figure 17 ASSISTANCE training course showing the access restrictions to each subject.

4.2. Evaluation criteria for the practical subjects

Regarding the practical subjects (5, 6, 7 and 8) evaluation criteria will be based on the achievement of the objectives/goals of each scenario.

As the practical subjects will be composed by different scenarios that will be performed through different VR platforms, these evaluation criteria will depend on the virtual platform used. In the following sections, the evaluation criteria selected for each VR platform provider is described.

The evaluation criteria will assess the learner's capabilities for facing complex situations and will generally be based on the FADCM model. FADCM stand for Facts, Analysis, Decision, communication and monitoring (see Figure 18 below) and is a tool to generate qualitative evaluation criteria. For example, these criteria could be:

- What was the intended outcome and what was the actual outcome?
- What specific actions and behaviours contributed to the intended outcome?
- What specific actions and behaviours detracted from the intended outcome?
- What actions will increase the likelihood of meeting the intended future outcome?
- Did the student gather all relevant facts of the incident?
- Did the student perform an effective analysis of the relevant facts?
- Did the student execute the proper tactical plan based on the analysis of the facts and the available resources?
- Did the student communicate his plan to his available crews?
- Did the student monitor the executing of his plan in an effective manner?

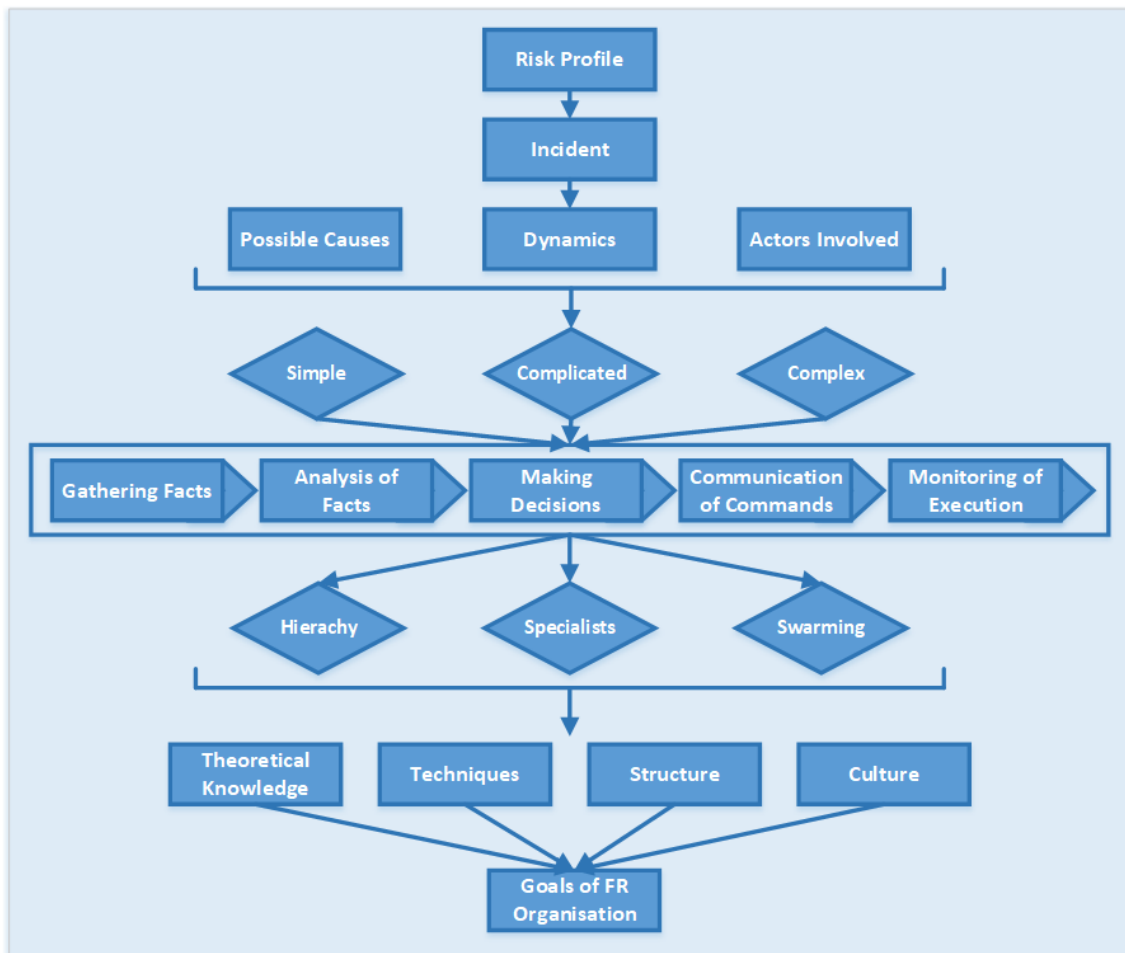


Figure 18 FADCM model used for evaluation of trainees of IFV VR platform.

Evaluation criteria to assess learning outcomes for situational awareness will also reflect on the following critical moments [ref. 6.1]:

- *Collecting: the learner collects information about the incident, consulting various sources such as radio communication, key figures and relevant incident documentation.*
- *Understanding: the learner understands the type, size, scope and complexity of the incident and the rate of incident change, and adequately upscales responses to the incident.*
- *Predicting: the learner understands the circumstances of the incident and predicts its possible course.*

Also, to provide training situations with increased user experiences requires the instructor to provide good counter-play, injections, and present appropriate consequences for decisions and actions.²

² Hedal I., Hammar Wijkmark C., Pareto L.: Simulation and Serious Games for Firefighter Training:

4.2.1. UPVLC VR platform evaluation criteria

The UPVLC VR platform (SIMTAC) has not a specific module for evaluation and scoring the exercises. Therefore, the ASSISTANCE scenarios performed through this platform (in the same way that the real courses are taught with this platform) will be evaluated with evaluation criteria based on quantitative data taken during the scenario performance.

As stated previously in this document, the VR scenarios will be described during T6.3 so the evaluation criteria stated in this document will be generic and will be specified for each scenario once they had been described in detail during T6.3. According to this approach, the generic evaluation criteria selected for the courses performed through the UPVLC VR platform will be as follows:

- Time for completing a determinate activity in the VR environment. (e.g. the firefighter brigades should arrive to the hot spot in less than 5 minutes).
- Score of each of the actions to be performed during the scenario. (e.g. arriving to the hot spot will be scored with 5 points). If some activities have a concrete time window for being performed, its score will be 0 if the activities have been performed in a higher time window.
- The global scoring that a trainee must achieve for passing a determinate scenario will be 80% of the total score (e.g. if a determinate scenario has a total score of 100 points, the trainees will have to achieve at least 80 points for passing the scenario).

All the scoring and times will be taken by the scenario master that will be present during the scenario's performance.

4.2.2. IFV VR platform evaluation criteria

Within the IFV VR platform (ADMS), all the scoring and times will be taken by the scenario master that will be present during the scenario's performance. An observation form consists of observation points to be checked off by the scenario master, and objective information is registered by ADMS. The combined results indicate the trainees' performance level and are helpful in the process of after-action review. The results are saved in a system of trainee record keeping.

The generic evaluation criteria selected for the courses performed through the IFV VR platform will be as follows:

D6.2 Training Curricula development & Scheduling

- Time for completing a determinate activity in the VR environment. (e.g. the fire must be under control within 8 minutes after arrival at the scene of the fire brigades).
- Score of each of the actions to be performed during the scenario. (e.g. a fire that is under control will be scored with 5 points). If some activities have a concrete time window for being performed, its score will be 0 if the activities have been performed in a higher time window.
- The global scoring that a trainee has to achieve for passing a determinate scenario will be the 80% of the total score (e.g. if a determinate scenario has a total score of 100 points, the trainees will have to achieve at least 80 for passing the scenario).

4.2.3. CNBOP VR platform evaluation criteria

Each scenario ends when all victims have been evacuated and divided into three groups. It can also be completed by a trainer or have a specific time after which it ends.

The virtual reality platform automatically generates a report at the end of the scenario. The interaction of the victim and the bystander can be analyzed by the trainer together with the participants of the training, thanks to which they understand the mistakes made.

Name: Victim3 Age: 30 Is alive Has pulse Breath: Correct Won't breathe after clearing airways Will breathe after rescue breaths AVPU: Unresponsive Performed by: Procedure Incomplete Band Unassigned Correct band: Red Triage start time: Actions weren't started Actions done: Actions you should have done: CheckWalk, CheckBreath, CheckPulse, (CheckPain, CheckAwareness), TriageBandRed	Name: Victim2 Age: 34 Is dead No pulse Breath: Undetectable Won't breathe after clearing airways Will breathe after rescue breaths AVPU: Unresponsive Performed by: SecondSquadLeader, Commander Procedure Complete Band Assigned Correct band: Black Triage start time: 00:05:35 Actions done: TriageBandGreen, Oximeter Actions you should have done: CheckWalk, CheckBreath, CheckAirway, CheckPulse, TriageBandBlack	Name: Victim1 Age: 34 Is dead No pulse Breath: Undetectable Won't breathe after clearing airways Will breathe after rescue breaths AVPU: Unresponsive Performed by: SecondSquadLeader Procedure Complete Band Assigned Correct band: Black Triage start time: 00:04:36 Actions done: CheckWalk, TriageBandRed, TriageBandBlack Actions you should have done: CheckWalk, CheckBreath, CheckAirway, CheckPulse, TriageBandBlack
--	---	--

Figure 19 Excerpt from the training report with detailed information on the victim's condition and trainees' performance

In addition, a score will be generated based on the correct performance of key actions in the procedure, which can be used to evaluate how well the trainees are learning. A low score (below 50%) will mean the training must be repeated. Exact evaluation criteria and scoring will be determined later in the project

In addition, one person observes the implementation of the scenario and additionally evaluates the observed activities. All results can be recorded, so they can be published as training material or can be analyzed in more detail.

5. D6.1 Conclusions applied for ASSISTANCE Training Curriculum

As stated in T6.2 description “Based on the training methodology defined in D6.1 a step-wise training curriculum will be composed”. For this reason, the consortium has considered the conclusions of D6.1 for the elaboration of the training curricula produced during T6.2.

The first conclusion of D6.1 applied in the training curricula elaboration was the suggestions on the training methods to be used in ASSISTANCE performed in this document:

“Due to the nature of the ASSISTANCE project and the VR and MR requirements, we automatically need to select training methods from the upper part of the spectrum. High tech means technology plays a substantial role in these methods (e.g. use of laptops, gamification, online learning environments).

Based on the results of the questionnaire and the availability of methods within the European training network, the following methods have been chosen.

E-learning: through an Advanced Distance Learning platform (e.g. Moodle) several contents will be made available to the learners (FRs) in order to give them knowledge on VR training (e.g. pdfs, videos, etc) and knowledge on the use of the VR platforms that compose the ASSISTANCE training network (e.g. Manuals, explicative videos, etc).

Webinar (online seminar): through online webinars some directed workshops will be performed with a reduced number of FRs for deeper explanations on the VR tools and problems solving.



Manuals



Guided Exercises



Video Explanations



Webinars

And of course, the progressive use of the available VR/AR/MR training platforms that form part of the ASSISTANCE training network.

At the end of the training process described in this methodology, the FRs will be able to use the available VR platforms for performing several scenarios (from simplest to more complicated ones) in order to proof the concept stated in the DoA.”

D6.2 Training Curricula development & Scheduling

Therefore, based on these D6.1 recommendation stated above the consortium setup a Moodle server (e-Learning platform) and build the first part of the ASSISTANCE step-wise curricula on this platform. This Moodle server is available at: <https://moodle.satrd.dcom.upv.es/>

In this server it has been created a dedicated course for ASSISTANCE, which encompass the 4 first subjects of the ASSISTANCE training curricula These subjects are composed by textual content, videos, manuals, etc (See section 3). The rest of the subjects of the curricula will be performed directly through the different VR platforms available.

Another recommendation form D6.1 is the following:

“Based on the training methodology, a tailored step-by-step training curriculum will be composed, consisting of training objectives per step as well as the methods for their evaluation.”

As described in section 3 of this deliverable all subjects that compose the ASSISTANCE training curricula include their training objectives as well as their training content. In addition, in section 4 of this document the evaluation criteria for each of the subject are described in detail.

This way the consortium has applied the D6.1 recommendation for performing the ASSISTANCE training curricula escribed in D6.2 as required in the DoA.

6. ASSISTANCE Training Scheduling

According to the DoA, the VR platforms that form the ASSISTANCE training network have to be ready for being used in M23. Therefore, no this would be the deadline for starting the training described in the curricula from subject 5 to 8.

Concerning the theoretical part of the curricula, it is supposed that during T6.3 this content should be ready for starting the training described in subjects 1-4. Nevertheless, the consortium has started in T6.2 to preparing this content and it should be completely ready before the end of T6.3.

On the other hand, the consortium does not want to have much time between the theoretical subjects and the practical ones for giving continuity to the overall training process proposed.

Considering the above-described deadlines, the consortium proposed the following schedule for accomplishing the whole training process.

ASSISTANCE TRAINING PROCESS SCHEDULING			
Subject Number	Starting Month	Type of training	Learning Means
1	18 (October 2020)	Theoretical	Moodle Server
2	20 (December 2020)	Theoretical	Moodle Server
3	22 (February 2021)	Theoretical	Moodle Server
4	24 (April 2021)	Theoretical	Moodle Server
5	26 (June 2021)	Practical	VR platforms
6	30 (October 2021) During the first Pilot	Practical	VR platforms
7	32 (December 2021) During the second Pilot	Practical	VR platforms
8	34 (February 2022) During the third Pilot	Practical	VR platforms

Table 29 ASSISTANCE training process scheduling

Subjects 1 to 4 will have a month each of them for being passed for the trainees, starting from October 2020. Each trainee will perform the connections to the Moodle server that they need for passing each subject. The way of passing a subject is to obtain 80% or more in its review quiz. As stated in section 4.1.

D6.2 Training Curricula development & Scheduling

Subject 5 will have different remote sessions that will be scheduled from 1st of June to 31 of September 2021 among the FRs trainees' groups and the VR platforms providers.

Once one session had been scheduled for one day and hour for testing one of the VR available platforms, the VR platform provider will send the necessary instructions for performing the connection and will assist the FRs during the scenario performance answering questions or explaining activities and goals.

At the end of the scenario, the trainees will be informed on their scores according to the evaluation criteria stated in section 4.2 and will know whether they have passed the scenario or they have to try again.

Subjects 6 to 8 will be performed during the days of each of the project pilots.

7. Conclusions

This deliverable has presented the ASSISTANCE training curriculum and the preliminary scheduling needed to complete all the proposed subjects.

For the definition of the ASSISTANCE training curriculum the consortium has considered the recommendations and results of D6.1 and the end users' participation.

Following the step-wise approach, the ASSISTANCE training curriculum was defined including a total of eight subjects which covers from the general concepts on Virtual Reality (VR) to the performance of complex scenarios using the available VR platforms in the consortium.

The subjects that compose the ASSISTANCE training curricula are as follows:

- 1 Background Knowledge
- 2 ASSISTANCE Virtual Reality Platforms
- 3 ASSISTANCE Virtual Reality Platforms Usage
- 4 ASSISTANCE Virtual Reality Scenarios
- 5 ASSISTANCE Simple Virtual Reality Scenario
- 6 ASSISTANCE First Pilot Virtual Reality Scenario
- 7 ASSISTANCE Second Pilot Virtual Reality Scenario
- 8 ASSISTANCE Third Pilot Virtual Reality Scenario

They can be divided into two different kinds of subjects:

The theoretical subjects (1 -4), which will be taught through the UPVLC Moodle server

The practical subjects (5-8), which will be taught through the performance of different scenarios with the available VR platforms.

Each subject definition includes a short summary of the subject, their main, general and specific objectives as well as their preferred evaluation method and pre-requisites needed.

Additionally, in Appendix A, "Instructions for Accessing the ASSISTANCE Course" the reviewers can find easy instructions for accessing the UPVLC Moodle server and checking the contents of Subjects 1 to 4.

8. Annex 1: Instructions for Accessing the ASSISTANCE Course

In the following pages the process for accessing to the training contents uploaded to the UPVLC Moodle Server is described. Project reviewers are welcome to join the course for checking the contents.

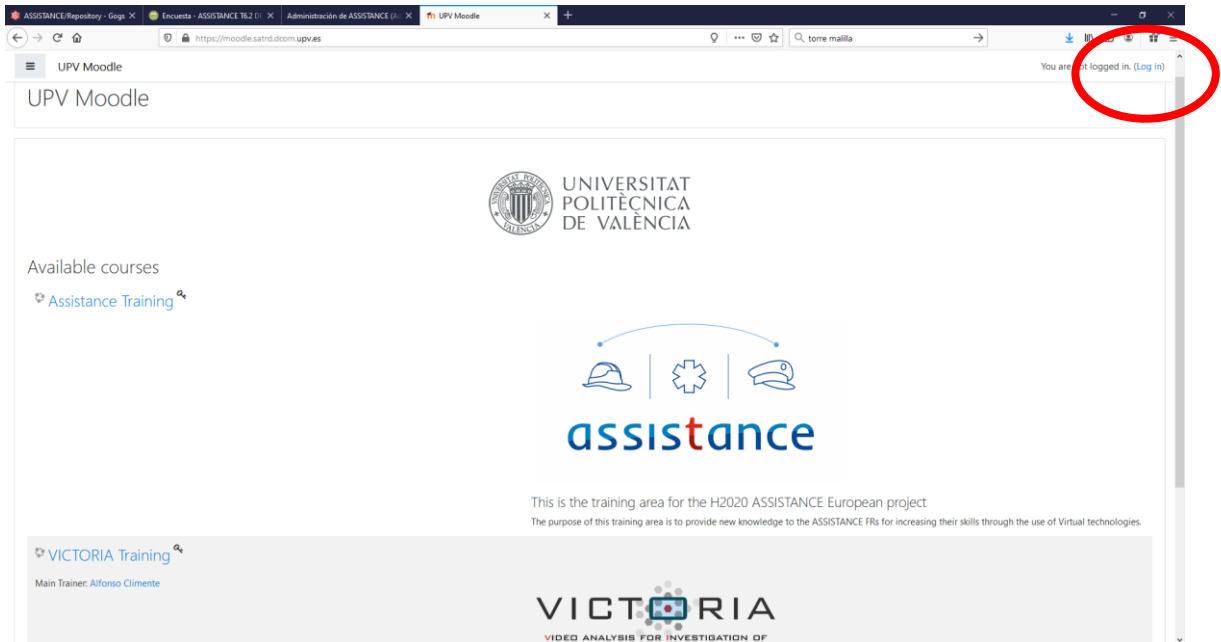


Instructions for enrolling into the ASSISTANCE training platform

D6.2 Training Curricula development & Scheduling

SLIDE 1

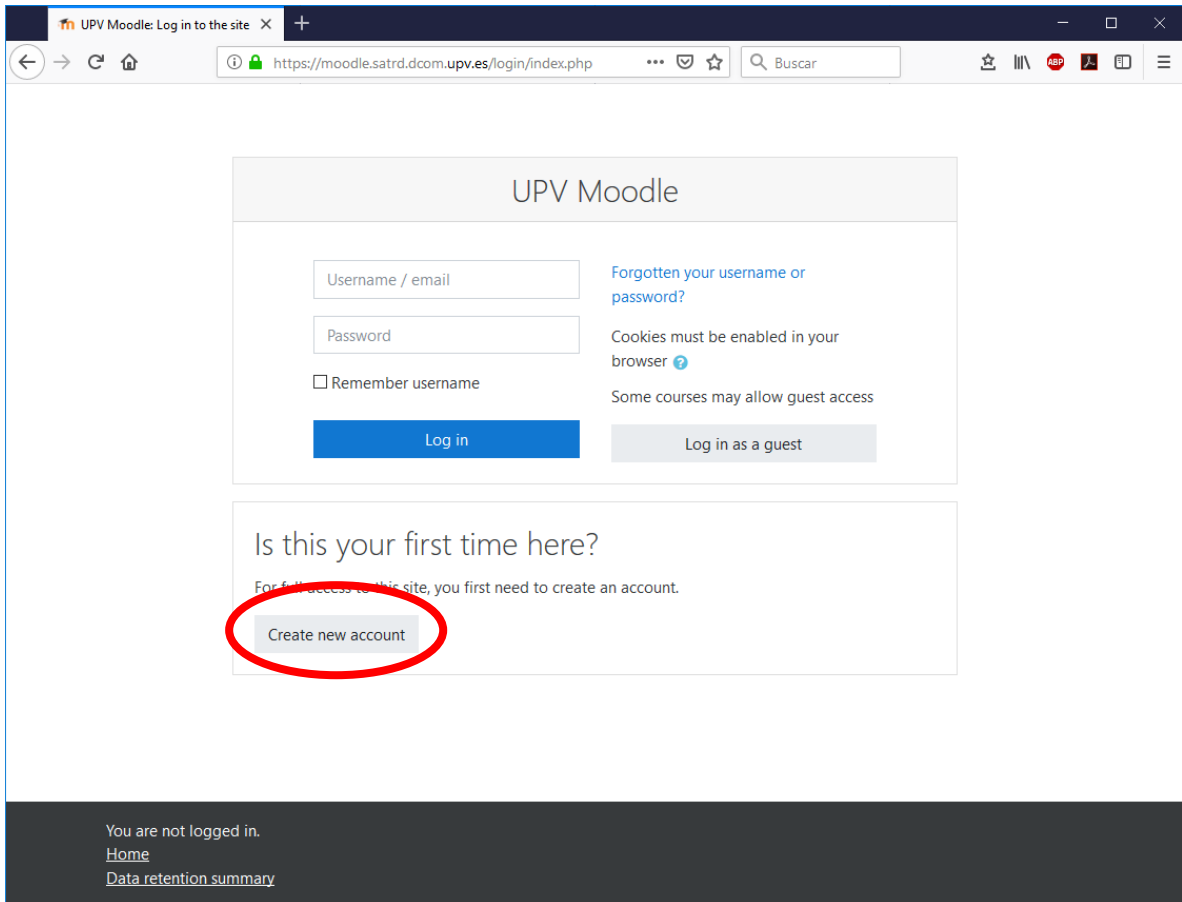
To begin first access the UPV Moodle site by using the link <https://moodle.satrd.dcom.upv.es/>



The screenshot shows a web browser window with the URL <https://moodle.satrd.dcom.upv.es/>. The page title is "UPV Moodle". In the top right corner, a notification says "You are not logged in. (Log in)", which is circled in red. Below the header, the UPV logo and "UNIVERSITAT POLITÈCNICA DE VALÈNCIA" are displayed. Under "Available courses", there is a link for "Assistance Training". The main content area features the "assistance" logo, which includes icons for a hard hat, a medical cross, and a graduation cap. Below this, it states: "This is the training area for the H2020 ASSISTANCE European project. The purpose of this training area is to provide new knowledge to the ASSISTANCE FRs for increasing their skills through the use of Virtual technologies." At the bottom, there is a section for "VICTORIA Training" with the main trainer listed as "Alfonso Clemente" and the "VICTORIA" logo with the tagline "VIDEO ANALYSIS FOR INVESTIGATION OF".

When the page loads, click into “Log In” to proceed to the log in/user creation page.

SLIDE 2



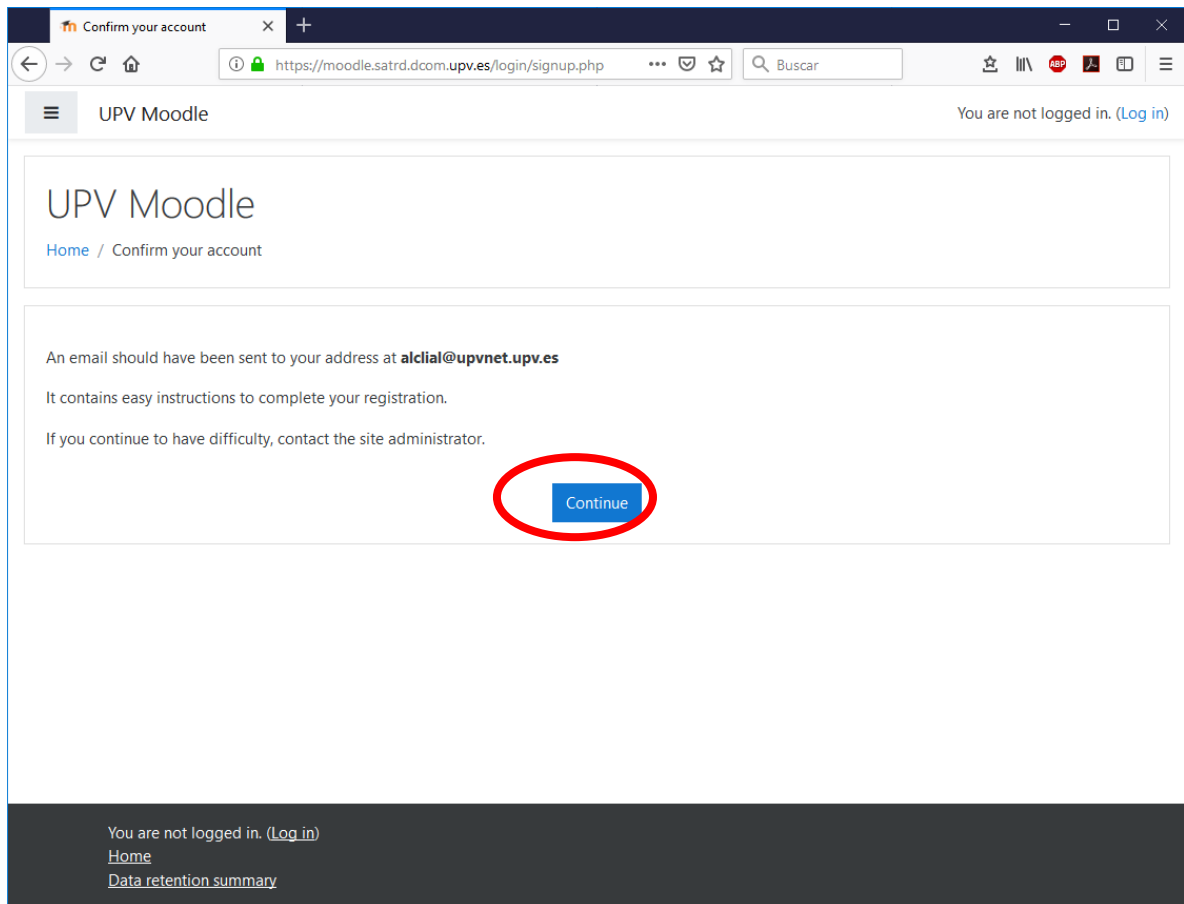
If you do not have an already created account, proceed to create one by clicking into the “Create new account” button.

If you have an account please proceed to SLIDE 7.

SLIDE 3


Fill in the form with your data and **please add in your Surname the Organization you belong** to make it easier to group students together. If you are a reviewer just put Review after your surmane. Press on the “Create my new account” button to submit the account registration.

SLIDE 4



Once the form is submitted an email will be sent to your provided mail account to finish the registration process.

SLIDE 5

UPV Moodle: account confirmation  Inbox x

Admin User (via UPV Moodle) <noreply@upvnet.upv.es>
to Alfonso ▾

Hi Alfonso Climente (UPV),

A new account has been requested at 'UPV Moodle'
using your email address.

To confirm your new account, please go to this web address:

<https://moodle.satrd.dcom.upv.es/login/confirm.php?data=gaHZDCFUidmH4ml/student>

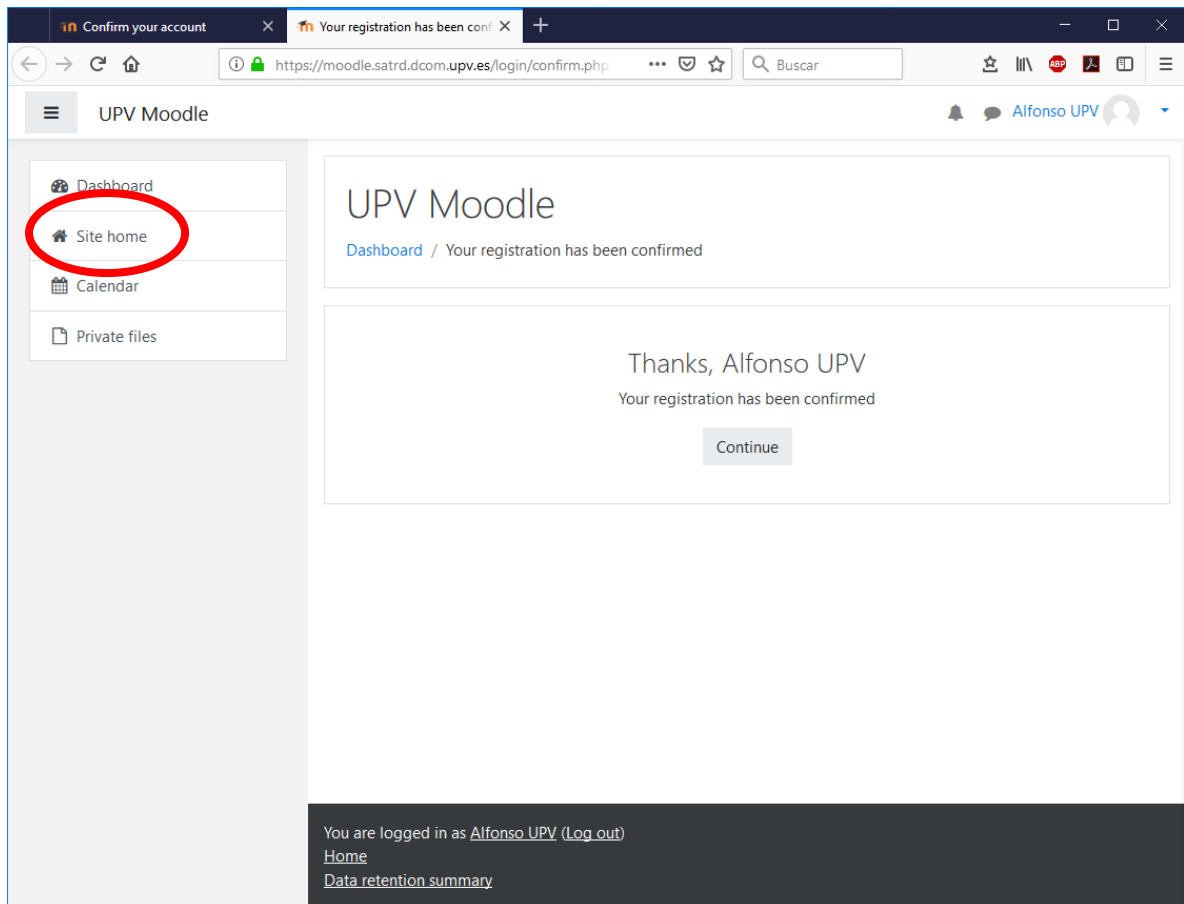
In most mail programs, this should appear as a blue link
which you can just click on. If that doesn't work,
then cut and paste the address into the address
line at the top of your web browser window.

If you need help, please contact the site administrator,

Admin User

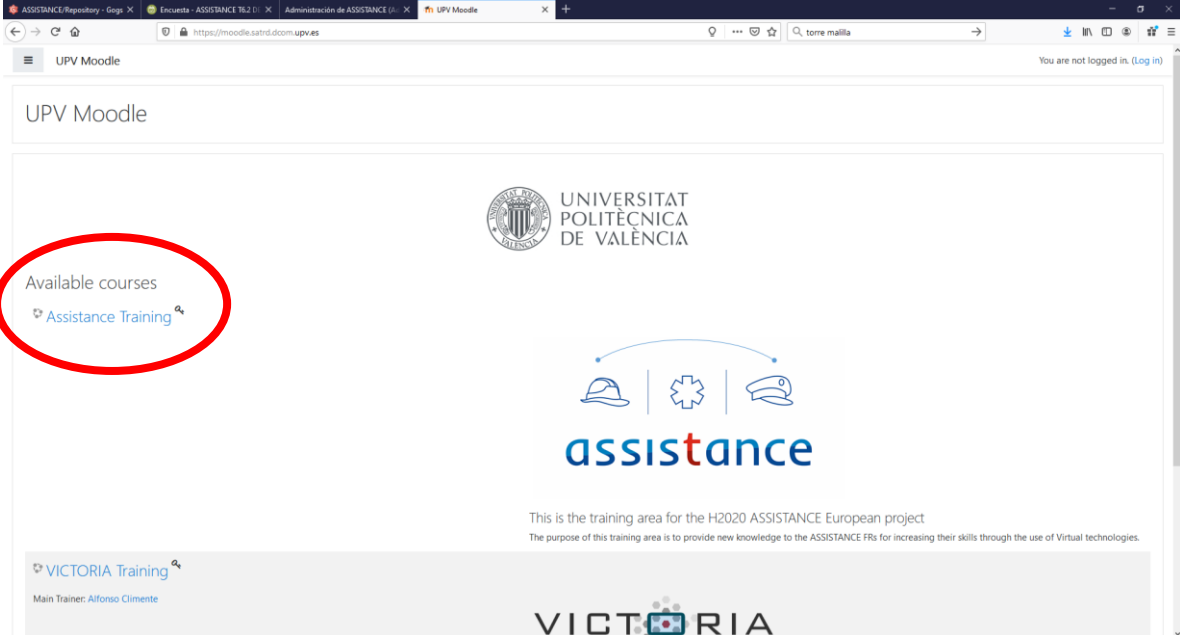
Once you receive the email, click on the given email to confirm your new account. You will be redirected to the Moodle site again.

SLIDE 6



The next step is to enroll into the course. Please click on the button “Site Home” located on the left menu.

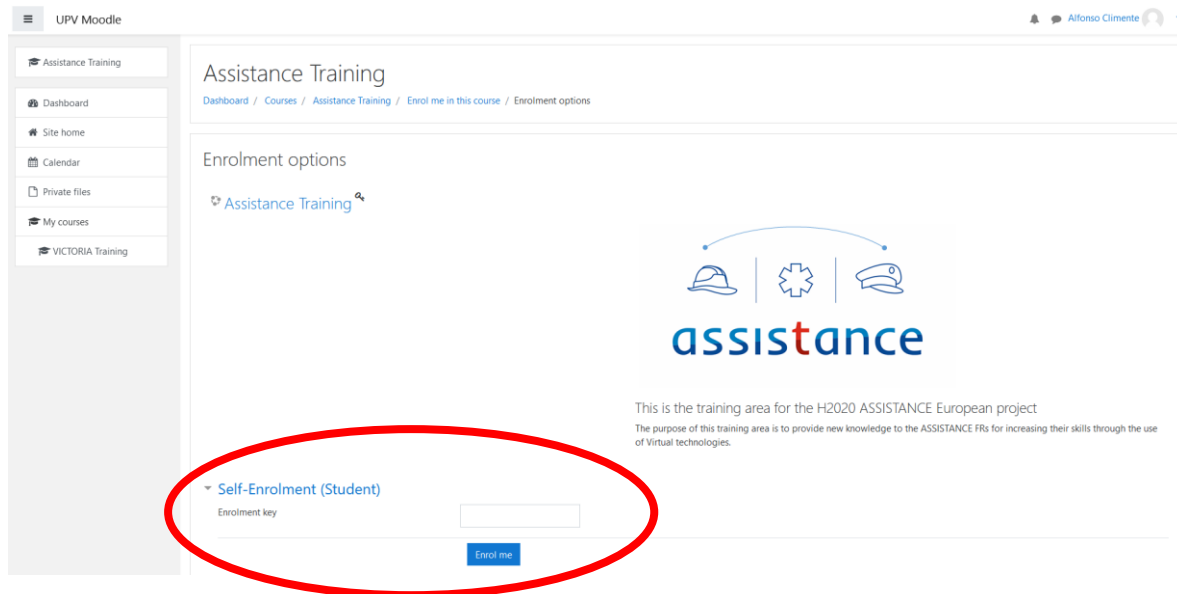
SLIDE 7



The screenshot shows a web browser window displaying the Moodle interface for the Universitat Politècnica de València (UPV). The page title is "UPV Moodle". In the top right corner, it says "You are not logged in. (Log in)". The main content area features the UPV logo and the text "UNIVERSITAT POLITÈCNICA DE VALÈNCIA". Below this, there is a section titled "Available courses" with a red circle around it. Underneath "Available courses", the course "Assistance Training" is listed with a magnifying glass icon. Further down, there is a logo for "assistance" with icons of a hard hat, a medical cross, and a graduation cap. Below the logo, it says "This is the training area for the H2020 ASSISTANCE European project" and "The purpose of this training area is to provide new knowledge to the ASSISTANCE FRs for increasing their skills through the use of Virtual technologies." At the bottom, there is a section for "VICTORIA Training" with the text "Main Trainer: Alfonso Clemente" and the "VICTORIA" logo.

Select the course you want to enroll.

SLIDE 8



The screenshot shows a Moodle course page for 'Assistance Training'. The breadcrumb trail is 'Dashboard / Courses / Assistance Training / Enrol me in this course / Enrolment options'. The page title is 'Assistance Training'. Below the title, there is a section for 'Enrolment options' with a link to 'Assistance Training'. The main content area features the 'assistance' logo, which consists of three icons (a hard hat, a gear, and a graduation cap) above the word 'assistance'. Below the logo, there is a paragraph: 'This is the training area for the H2020 ASSISTANCE European project. The purpose of this training area is to provide new knowledge to the ASSISTANCE FRs for increasing their skills through the use of Virtual technologies.' At the bottom of the page, there is a section for 'Self-Enrolment (Student)' with an 'Enrolment key' label, a text input field, and an 'Enrol me' button. A red oval highlights the 'Self-Enrolment (Student)' section and the 'Enrol me' button.

Use the provided Enrolment Key to finish the auto-enrolment.

For reviewers the Enrollment Key will be: ASSISTANCE2020

SLIDE 9

You will receive a welcome email from the training team.

Hello ASSISTANCE partner.

Thank you for enrolling into the ASSISTANCE Training.

If you have any question, please consider sending an email to fecarro@upvnet.upv.es

Thanks!!!