

DITMEP

Digital Tools for Manufacturing training and Education Programmes

Guidelines for the use of the e- learning platform for the trainee

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1. Presentation of the course and welcome

Welcome to the Occupational Risk Prevention Course in a composite workshop. We hope that the training you will receive is to your liking and that it helps you improve your professional skills. This course is an online training. It is characterized by allowing great flexibility, allowing each participant to carry out their own pace of work. On the other hand, it requires a large dose of independence and will, responsibility and self-management capacity. This didactic guide that is presented below is a very important tool, because it will allow you to know the contents and methodology of the course, as well as the main aspects related to the management of the teletraining platform. The course was developed through the European Project DITMEP (Digital tools for manufacturing training and education programmes). Let's get to know a bit more about the project.

2. DITMEP project

The [DITMEP](#) project tries to fulfill the need for a digital way of teaching and learning, that arose especially after the Covid-19 pandemic. Its general objective is to deploy this training course in an e-learning platform with a core syllabus on risk prevention and health: "To reinforce learners and teachers with digital capabilities: guides on how to use the materials, how to complement in-presence teaching and to develop on-line training."

All the materials resulting in the project are being tested by the partners in a Moodle-based e-learning platform. ISQ (Portugal), through the ISQ Academy, supports this e-learning space implemented in their Moodle platform.

This Moodle course was the result of the work done by USC regarding space design and configuration, ISQ from the experience in training through its Moodle platform, ensures accessibility, usability, and support to the implementation of the tools developed, and all of the consortium that participated in the development of the content and activities. All the contents are available in 4 languages: Portuguese, Spanish, German, and English. The project website will complement the course, making all the DITMEP contents available.

3. Objectives of the course

The main objectives of the Occupational Risk Prevention Course are

- Understand and identify the risks derived from work in a composites workshop and know possible preventive measures.
- Promote safe behaviours and the correct use of work equipment and protection by workers in the composites sector.
- Foster the interest and cooperation of workers in risk prevention.
- Promote basic preventive actions, in particular: order, cleaning, signage and general maintenance.

4. Contents of the course

This course has eight modules/ units, all of which contain an extensive document with the content, and some other units have activities to test the knowledge learned:

1. **Basic concepts about security and health-** Extensive theoretic document, discussion field for doubts, letter soup activity, fill in the gap's activity, and some useful resources to consult.
2. **General risks and their prevention-** Extensive theoretic document, crossword activity, questionnaire activity, image matching activity, and useful resources to consult.
3. **COVID-19 prevention and safety-** Extensive theoretic document, questionnaire activity, and some useful resources to consult.
4. **Risks associated with workplaces and work surfaces-** Extensive theoretic document and some useful resources to consult.
5. **Risks associated with work equipment-** Extensive theoretic document and some useful resources to consult.
6. **Risks linked to the use of chemical products-** Extensive theoretic document and some useful resources to consult.
7. **Personal protective equipment-** Extensive theoretic document and some useful resources to consult.
8. **Signposting a polyester workshop-** Extensive theoretic document, letter soup activity, drag and drop activity, questionnaire activity and some useful resources.

5. Specific objectives of each unit or module

Regarding the **specific objectives**, the following are allocated to a module of the course:

Block I- General Risks' objectives:

- **Module I- basic concepts on safety and health:** Know terminology related to the prevention of occupational risks, as well as its objectives and general principles; Know the rights and obligations in preventive matters of companies and workers.
- **Module II- General risks and their prevention:** Know the types of risks that can occur in a workplace and their classification to understand the subsequent risk assessment of a polyester workshop.
- **Module III- Prevention and safety against COVID-19:** Know what is and how is COVID-19 transmitted, general measures to avoid transmission, and specific measures that companies must take; Know the existence of action protocols in case of contagion.

Block II- Specific Risks' objectives:

- **Module IV- Risks associated with workplaces and surfaces:** Identify the risks associated with the workspace and the impact of order and cleanliness as a preventive measure.
- **Module V- Risks associated with the use of tools:** Identify the tools used in a polyester workshop and what they are used for, know the risks and indicate preventive measures.
- **Module VI- Risks associated with machinery:** Identify the machinery, its correct use, the importance of following the operating and safety instructions; Analyse if there are collective protection measures, what they are, and what they are worth.
- **Module VII- Risks associated with the use of products:** Know what products are used and what they are for; Identify the chemical components of each product; Know the dangers inherent in the use of products and preventive measures; Know the main risks (burns, explosion, inhalation of vapors, contact ...); Interpret the safety data sheets, identifying the information they provide on the properties and effects of chemical substances and mixtures during their use. Know the pictograms; Properly store each product used, in a place specially designed for this purpose, taking into account the incompatibilities between them to avoid their passage to the workshop environment or accidents due to accidental spillage or spillage; Handle concentrated products with great care. Pay special attention when mixing and transferring products are carried out in well-ventilated places.
- **Module VIII- Personal protection elements (PPE) and safety clothing:** Identify the necessary PPE for the development of the activity or under the extractor hood, using personal protective clothing: gloves, glasses, masks, boots, and suitable clothing.
- **Module IX- Signage of a polyester workshop:** The students are able to interpret the safety, warning, and obligation signs that will be used in a polyester workshop

6. How to enrol the course?

The enrolment of the students is the responsibility of the trainer, this is the template that the trainer should use in the class:

Username	Password	First name	Last name	E-mail	Role
					Student
					Student

The trainees should create their usernames and passwords and give their first and last names and e-mail. The role is fixed, and it should always be "Student". Once filled and sent to an ISQ staff member the trainees will have access to the ISQ Academy Moodle.

7. Log in to the Moodle Course as a student:

First, access the ISQ Academy Moodle by clicking on this link: <https://moodle.isq.pt/>

Then you should click on the highlighted text in Figure (1) bellow.

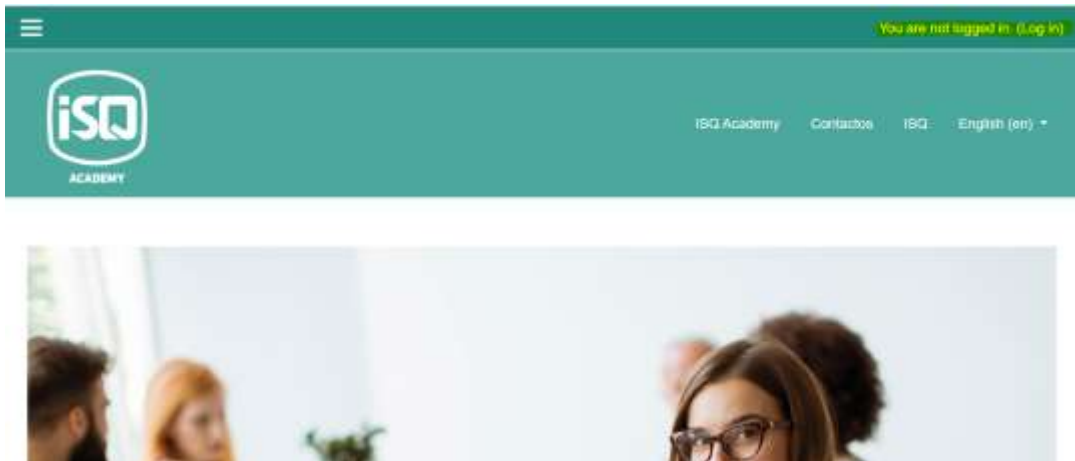


Figure 1

You should fill the yellow highlighted fields with the username and password you created, but first confirm if it has been authorized by ISQ (via e-mail) (Figure 2).

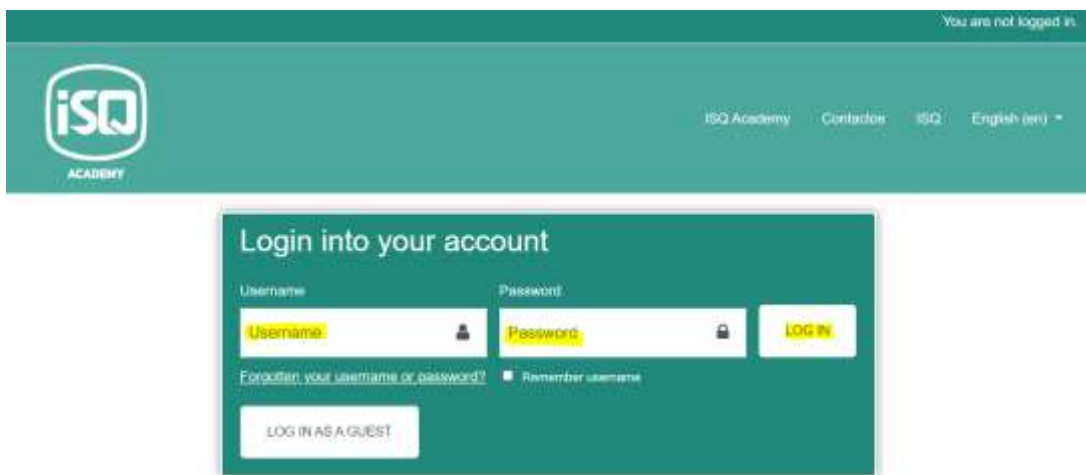


Figure 2

Once you are logged in, you can access the course in which you are enrolled, in this case the RL_2 “Labour Risks” (Figure 3).



Figure 3

8. Overview of the course (content, activities and evaluation)


Once logged in, you will see the units aforementioned with the theory content and the different activities. Those activities will be the way to evaluate your knowledge and the understanding of the theory part seen before. To pass the course, students must read the theoretical contents and carry out the exercises that they will find in them, as well as carry out the activities proposed in each of the units. The types of activities included are:

- Self- assessment questionnaires linked to the topics addressed in each section.
- Gamification activities such as word search, matching images and words, completing words in a text... that you will find in the different units

However, to carry out any activity it will be necessary to have carried out or read the theoretical contents or activities of the previous unit

9. Communication with the teacher

In order to communicate with the teacher, it is available a questions forum (figure 4) . And this forum will be used for direct questions to the tutor about the specific content of the course. Moreover, this forum can be also used by the tutor to inform students about issues related to the development of the course.



The image shows a Moodle forum post creation interface. At the top left is a green button labeled 'ADD A NEW TOPIC'. Below it are two input fields: 'Subject' and 'Message'. The 'Message' field is a rich text editor with a toolbar containing icons for bold, italic, underline, list, link, unlink, image, video, table, and other formatting options. At the bottom of the form are three buttons: 'POST TO FORUM' (green), 'CANCEL' (white), and 'ADVANCED' (green).

Figure 4

10. Extra activity: augmented reality tool

This course includes an extra activity which is an app for phones. All the links download the app are available on the Moodle and those links are:

- A link to download the app.
- A map to print (necessary to develop the activity).

The steps to carry on this activity are:

1. Installation and beginning

- 1- Download the app on your device
- 2- Once installed and when you open the app for the first time, the device will ask for your permission to access the camera which you must grant.
- 3- Then you will see the main menu (figure 5):



Figure 5

In this menu we can see 3 options, the first two correspond to the Signaling and PPE exercises (Emergencies) respectively, the third is an option that will contain project information. At the bottom (red circle) we see a gear. With it we access the language selection menu as you can see in figure 5.

- 4- Then you will access to the menu interface in exercises by clicking signalling or emergencies and you will see picture 6.



Figure 6

Red box: We can see two options; the house icon will take us to the main menu and the gear will take us will allow you to select the language.

Blue box: It is a navigation menu, the first icon will open a scenario selection window, the second and third will allow us to go to the next and previous scenario respectively.

Green box: It indicates the name of the current scenario

2. How to complete the activities?

To carry out the exercises in this application, we need a map on paper or on a monitor which contains the Markers, specific images on which the application will generate the contents

virtual with which we will interact. In each scenario the application will only recognize a certain marker, for example in the first Signalling scenario: "Entrance to a composites workshop" the application will generate the content (figure 8) once the camera of our device is focusing on the marker that represents a person using a door (figure 7).

COMPOSITES



Figure 7



Figure 8

If the generated scenery is not oriented correctly, move the device slightly closer to the marker, make sure it is displayed in the centre of the screen and wait 5-10 seconds. This will allow the application recalibrate the position of your device and reorient the stage.

3. Signalization exercise

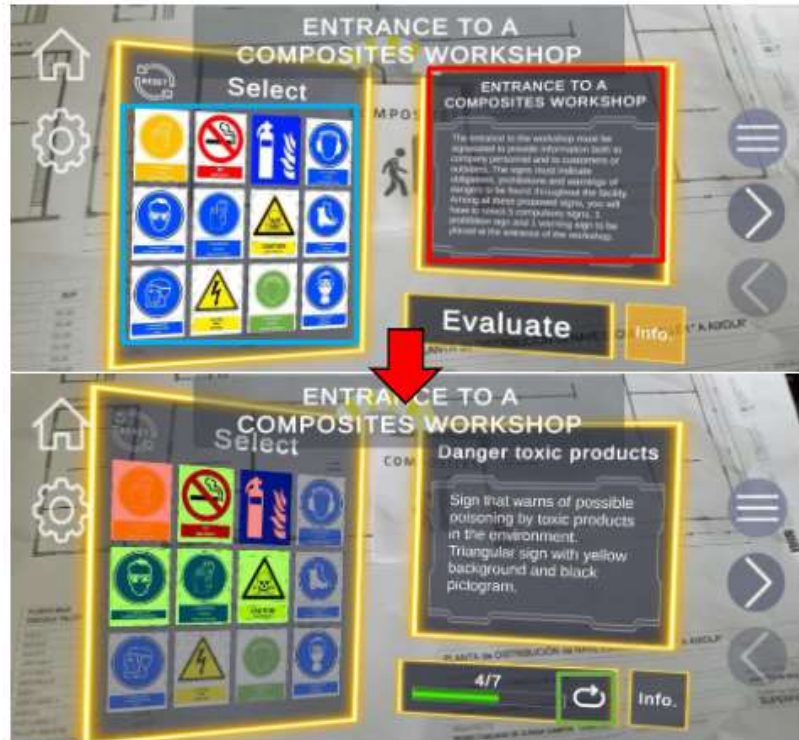
In this exercise the meanings are:

Red box: It indicates the name of the scenario and the statement of the exercise with a brief description and the task to perform, read it carefully. After interacting with the signals, the content updates to show relevant information about the last signal with which you have interacted.

Blue box: Here all the signals will be presented, from which we will have to choose those that appear to us. Ask in the statement of the exercise. We can perform two actions on the signals:

- Short press: The statement (red box) will be updated with information about the signal.
- Hold down: We will see a yellow circle close over the pressed signal. After 1 second the

The circle will close and the signal will turn yellow, indicating that you have selected the sign. If you do the same with a selected signal, it will be deselected. Once the signals have been selected, we press the evaluate button and we will be able to see the successes in green and in failures red. To retry the scenario, simply press the button with an arrow symbol (green box).



4. EPP exercise

Yellow box: When loading the scenario, it will show us the context of the exercise and its statement, read it sincerely. After interacting with the selectors, the content is updated to show information about the last piece of equipment you selected for the model.

Red box: Shows the list of selectors for the different parts of the body. Each selector has an initial text indicating the body part, two arrows to navigate through the list of available equipment in each exercise and a central text indicating the currently selected equipment. Every time that change the equipment, the contents of the yellow box will be updated with relevant information of the same.

Blue box: Shows the avatar on which the team models will be loaded, providing help visual for the resolution of the exercise.

Once the team has been selected, we press the evaluate button and we can see the successes in green and in red. The falls. To retry the scenario, just press the button with an arrow symbol.

