

PE-ABLE: TRAINING AND PERSONAL ABILITIES TO GUIDE PARTICIPATORY ERGONOMICS PROGRAMMES



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Executive Summary
<p>This report defines the vocational education and training (VET) curriculum of the PE-ABLE e-learning course on participatory ergonomics. The course is designed to teach professionals wanting to improve their knowledge and practice in the domain of participatory ergonomics (PE). The course can either be followed in a non-formal training environment, or be part of a formal academic training. For the latter, two European Qualification Framework (EQF) levels have been defined: EQF level 5, the basic PE-ABLE course of 70 hours, and EQF level 6 advanced course of 120 hours.</p> <p>The report defines learning objectives, as well as its course structure. Students who follow, and finish the course successfully will understand ergonomics hazards in workplaces and will, by following participatory ergonomic principles, introduce effective preventive measures to reduce exposure to these hazards. The course structure consists of six modules, addressing underlying subjects of ergonomics, all aspects of participatory ergonomics, and major factors influencing the success and effectiveness of interventions resulting from this approach.</p>

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1. Introduction

This document has the ambition to describe the intended structure, content and administrative arrangements for a training programme responding to the specific needs of professionals engaged in Occupational Safety and Health (OHS) tasks, and will address both professional issues as well as the contextual aspects regarding the training lacks in the official education of this professionals with respect to participatory ergonomics and personal abilities.

Participatory ergonomics (PE) is an interactive process in which different actors are involved. The known experiences show us that the PE process requires providing a series of "facilitation inputs" for a proper development. The base of the PE interventions consists of entailing all the different departments of the company in the process of diagnosis and solution of the ergonomics problems in workplace, included the workers.

The participatory ergonomics (PE) programmes are an adequate alternative to reduce the prevalence of the MSDs in all type of companies. They can be a cheap alternative, since they do not use many resources, and they have demonstrated efficiency, because PE reduces the number of workers affected by MSDs and the costs related with these illnesses.

Nevertheless, it is not easy to start or to apply a good PE programme. It requires that a professional can lead and guide the process. In most of the interventions this role is assumed by the OHS professional. PE interventions require that this professional has a solid knowledge in the following aspects:

- **Ergonomics:** roots, criteria, protocols, evaluation systems and recommendations for the improvement of the wrong ergonomics conditions at the workplace. Part of this knowledge is seemingly acquired at the OHS formal training, although there is a lack of practical applications and also about specific aspects such as organizational ergonomics or socio-technical systems.
- **Participatory ergonomics:** Bases of PE, methodologies and techniques of PE, international experience, etc. The results of the analysis carried out in WP1 shows that this topics are not a part of the training curriculum of the OHS professionals.
- **Personal abilities and skills to guide a PE programme:** Problem-solving methods, promoting solution methods, change management, leadership and implication, operative planning techniques, communication, etc. The nature of PE implies dealing with a lot of stakeholders with different perspectives, aims and interests. Integrating all the sensibilities in order to obtain good results in all the steps requires specific techniques and skills that go beyond the technical ergonomics or PE knowledge. In WP1 We found that these topics are barely considered in the OHS VET curriculum.

In the analysis of the training offer for OHS in different countries, conducted in WP1, the main finding is that PE is not formally included in most of the current OHS official training curricula as, European-wide, there are very few references to education and training programs/courses entirely devoted to teaching PE. However, some of the training courses assessed, include some introductory topics on PE, although these are not intensely developed lacking specific contents on PE and its applicability within the companies.

Contents on PA are also partially included in most of the official OHS training programs and topics more frequently addressed included: training, information techniques and communication and negotiation. The OHS training programs approach to PA topics mainly focuses on the acquisition of competences on management and soft skills and is not usually specifically-related to ergonomics.

Experts and professionals consulted in WP1 considered very relevant the development of these topics in an specific course. Especially important for them are the aspects related to the concept and implications of participation, the specific PE techniques and methods and the personal abilities for group management and conflict resolution.

In the countries participating in the project, the existing training is very limited or nonexistent. Professionals consulted have learned (about PE) through the large existing literature, contacts with peers (mostly from other countries) or through specific projects.

Professionals consulted consider that, although there should be basic information on PE in the official OHS training it should only provide the basic framework/introduction of PE. This introduction to PE should be complemented by specific training (for example online training). In this sense, the PE-ABLE course can be considered as a good opportunity to bridge the gap between the actual training and the real needs of the professionals.

In this sense, it is expected that any training programme that has the ambition to prepare professionals for such demanding realities need to be both flexible and be capable of accommodating for a wide range of individual application orientations that are seen as highly relevant for its participants, as well as by them, as well as by the stakeholders related to the PE-ABLE project initiative. For this purpose has the programme introduced here been developed with the ambition of being flexible in the programme, in the orientation, in the module delivery and in the verification. The curriculum has been developed in such manner that it will be possible to implement the training programme defined by it in different manners, depending among other on the initial knowledge and experience of the students, in the scope of the course (formal vs informal, EQF level,...), in specific demands of clients (e.g.: companies), etc. The course will be designed in modules and sessions (see next paragraphs) in order that most of the information and activities can easily be adapted to different situations.

Based on these results, the next paragraphs of this report will define the VET curriculum of the PE-ABLE course intended meet the formative needs of the European OHS professionals to head PE programmes. Specifically, this will include defining:

- a) the **learning objectives** meeting formative needs (knowledge, skills and competencies) detected in WP1 and gathered in Deliverable 1;
- b) the suitable **course structure** (modules, sessions and scheduling) to achieve the learning objectives, including both theoretical and practical activities/materials;
- c) the **evaluation methods** to be used to demonstrate both the achievement of the learning objectives and the indicators to assess the quality/effectiveness of the course itself;
- d) the **recognition framework** that will be established to the vocational training proposed, and the exploration of the integration of the PE-ABLE course (or any of it modules) into formal training.

2. Learning methodology and objectives

2.1. Overall Training Methodology

Two crucial targets need be addressed for training preparation: the definition of training structure and methodology and the development of training modules.

The training activities contribute to the professional training of the involved actors.

The main characteristics of the PE-ABLE training courses are:

- Easy to start
- Possible integration between modules
- Focused feedback, materials and support
- Ideal for adult learning and professionals
- Customization of modules program and training design
- Rapid training for technical staff and users, if needed
- Provide ongoing guidance and support
- Provide step-by-step, time-tested materials.

It is essential to select a structure and a methodology that will be the most effective for its training environment considering factors such as:

- The overall training objective: what is expected to be achieved through training;
- Who needs to be trained: both in general, and any categorisation of trainees that would increase training effectiveness and economy;
- The expected learning outcomes: what each person trained is expected to be able to do, and expected to know, at different stages and at the conclusion of training;
- The scope of training methods, such as face-to-face intensive sessions, information briefings, provision of references or information materials, online available material and courses.

The training methodology consists of PDFs, case studies, and work groups. All didactical activities foresee a theory session and a practice one, including discussions and problem solving exercises.

Finally, an assessment test and a user-satisfaction questionnaire will be distributed in order to evaluate the module's results and its success amongst trainees.

2.2. Training Provision

The training programme is addressing both a set of generic and specific competencies. In addition there is also defined a set of meta-competencies per training module. The competency specifications based on ambition levels have been defined in four levels; an expected entry level for the training programme (0-level) and competence levels 1 to 3 for the three ambition levels. The four competence clusters, relating extensively to the coordination capabilities of a professional engaged which this training programme addresses, and the performance criteria defined for those, are:

1. Level 0 Plans tasks, within limits set to ensure that intended outcomes are achieved and completed → **DIDACTIC UNIT**
2. Level 1 Delivers own work to time and standard and takes responsibility for the work → **SESSION ACTIVITIES**
3. Level 2 Takes responsibility for work → **SELF-EVALUATION – FORUMS (MODULE)**
4. Level 3 Takes responsibility for the achievements of a team → **PRACTICES**

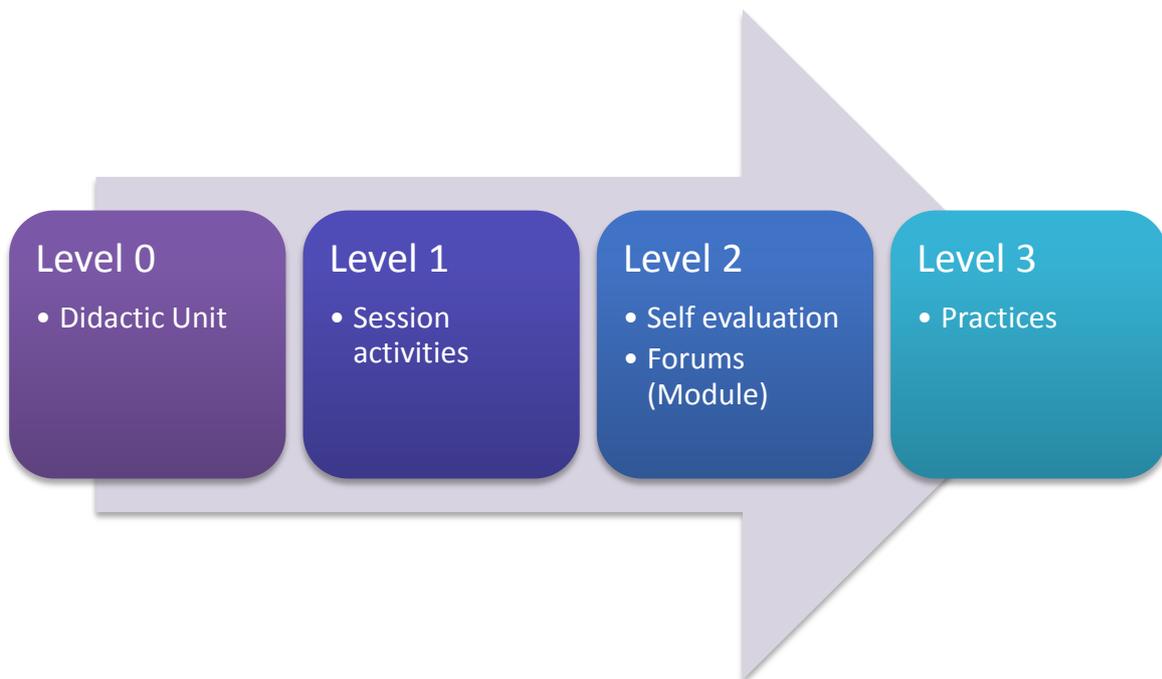


Figure 1: Levels of training at the PE-ABLE online course.

Minimum Entry Level / Level 0. The training programme participant is able to plan tasks, within limits set to ensure that intended outcomes are achieved and completed

- meets deadlines and objectives or alerts managers in good time if they cannot be met
- priorities own work and adjusts priorities in response to changing circumstances
- builds in own checkpoints to monitor progress against deadlines

- adapts to new ways of working and copes well with uncertainty
- gets to know what management, project team and clients/target groups wants and values
- deals courteously and promptly with client enquiries or ensures that someone else does
- takes responsibility for occurring problems and takes action to resolve them.

Basic - Competence Level 1. Delivers own work to time and standard and takes responsibility for the work of others operating under the unit being managed.

- delivers results on time and to agreed quality standards
- priorities own and any staff's work in line with overall organisational/unit priorities
- looks ahead, identifies potential problems and develops steps for dealing with them
- accepts responsibility and accountability for own and staff's work
- breaks down more complex tasks into discrete steps and sets milestones
- maintains a positive and confident approach when dealing with others
- encourages others to look for ways to provide a better service

Practical - Competence Level 2. Takes responsibility for the work of a design group or a design project. Plans ahead and builds flexibility into plans to cope with unexpected events.

- overcomes setbacks/obstacles for achieving results and learns from those events
- establishes arrangements to review progress of own and others' work
- understands/uses project management techniques to deliver on time and within budget
- builds good working relationships with clients and adapts work to suit their requirements
- knows the limitations of what can be delivered and manages the expectations of others
- seeks and acts upon feedback from management, clients and potential end-users
- helps people to take responsibility for the quality of their own work

Professional - Competence Level 3. Takes responsibility for the achievements of a design team / work-group or a design project and ensures that the design initiative is implemented as expected.

- clarifies objectives and identifies where the design needs are to make the greatest impact

- takes a longer term strategic view, linking own plans to overall aims of the design unit
- identifies risks to current plans and makes contingency arrangements
- finds out what is happening "on the ground" to ensure that work is implemented effectively
- sets up systems for monitoring the quality of a design and acts upon findings
- ensure the team appreciates importance of quality and is aware of standards and targets.

2.3. Learning objectives

PE-ABLE will be an e-learning training course with three lines of knowledge:

- Ergonomics
- Participatory Ergonomics (PE).
- Personal abilities and skills to guide a PE programme.

These three knowledge lines will cover all the requirements of OHS professionals to carry out PE programmes in companies. The pedagogical and content analysis of these lines has the following structure (that will be developed in paragraph 3):

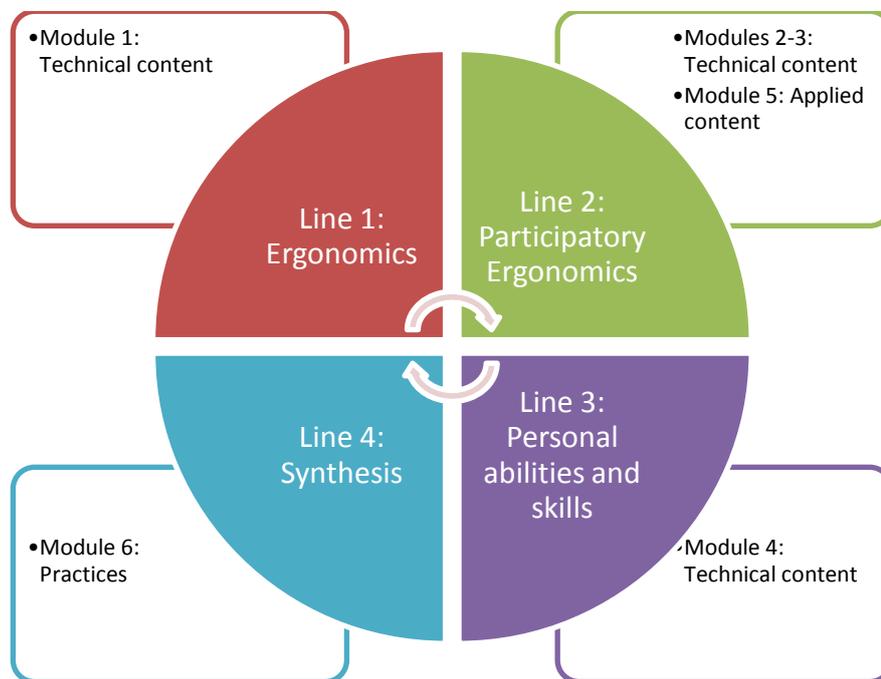


Figure 2: Learning structure at the PE-ABLE online course.

The learning objectives are based on these lines of knowledge. Accordingly with the course structure the learning objectives are the following:

Module 1 – Background of ergonomics

After completing this module students will be able to:

- Obtain an overview of the ergonomics domain.
- Understand the ergonomics problems at the workplace.
- Identify causes of inadequate and/ or poor ergonomics working conditions.
- Propose preventive measures to eliminate or at least reduce exposure to ergonomics risk factors.

- Undertake straightforward ergonomics evaluation.

Modules 2 and 3 (Participatory ergonomics)

After completing these modules students will be able to:

- Know the basics of participatory ergonomics and have arguments to propose and defend the application of the method at the workplaces.
- Plan and develop participatory ergonomics interventions.
- Determine the necessary preconditions for implementing an intervention.
- Use the appropriate tools, e.g. questionnaires, interviews or observations at the workplace.
- Collect and analyze information on existing problems.
- Recognise the risk factors and adverse effects and analyze the causes of the problems identified from the information collected.
- Select the most appropriate strategies and tools for monitoring and control of proposed preventive measures.
- Document and communicate the process of diagnosis, preventive measures and outcomes (e.g. by writing reports).

Module 4 - Abilities for a successful PE intervention

After completing this module students will be able to:

- Guide a participatory ergonomics intervention.
- Involve, motivate and inform all stakeholders in the intervention.
- Lead and facilitate the process of participation.
- Coordinate activities to ensure its proper implementation.
- Identify opportunities and circumstances that facilitate the continuity of the participatory approach in the company.
- Train PE group for autonomous action.
- Resolve any conflicts and facilitate the negotiation between the agents involved.
- Adapt the methodological tools to the characteristics and culture of the company.

Module 5 – PE programs: approaches, examples and good practices

After completing this module students will be able to:

- Know how the general principles and steps of PE programs have been adapted to specific procedures in different countries.
- Use complete tools specifically developed to accomplish PE programmes.
- Review different examples and experiences of application of PE programs in different productive sectors and countries.

Module 6 – Practice

The main goal of this module will be to put into practice the knowledge and skills acquired at the previous modules. The practices will be based on the development of a simulated environment (Basic course, EQF level 5) or the development of a PE program in a company (Extended course, EQF level 6).

3. Course structure and contents

This paragraph includes the specific structure applied to the PE-ABLE course, considering the following:

- Adaptation of the structure and contents to the requirements and needs detected in WP1.
- Definition of the main course as informal training.
- Modular structure, suitable to adapt to different environments and scenarios and to jump from an informal training structure to a formal one in the EQF levels 5 and/or 6 (see paragraph 5).
- Structure and organization adapted to an online training methodology.

3.1. Training Structure

The objective of training is to provide participants with the required knowledge and practice to use the PE-ABLE platform and components as needed.

Basic facts

- The basic element of the course is the **session**.
- The length of each session is about 3 hours
- Some can be basic knowledge sessions (EQF level 5) and others extended sessions (EQF level 6).
- The typical structure of a work session will be:
 - Previous ideas: This is a brief presentation (or summary) to introduce the student about the main topics of the session.
 - Teaching unit: a downloadable pdf document containing the main topics to study. It is divided into:
 - Objectives: are the learning objectives of the working sessions,
 - Topics (T): is the main content developed by the teacher,
 - Key ideas: they are the fundamental concepts that the teacher emphasizes as discussed in the session.
 - Activities: Each work session includes a series of exercises for the student to consolidate the knowledge acquired by putting them into practice.

General structure

The PE-ABLE course will have the following structure:

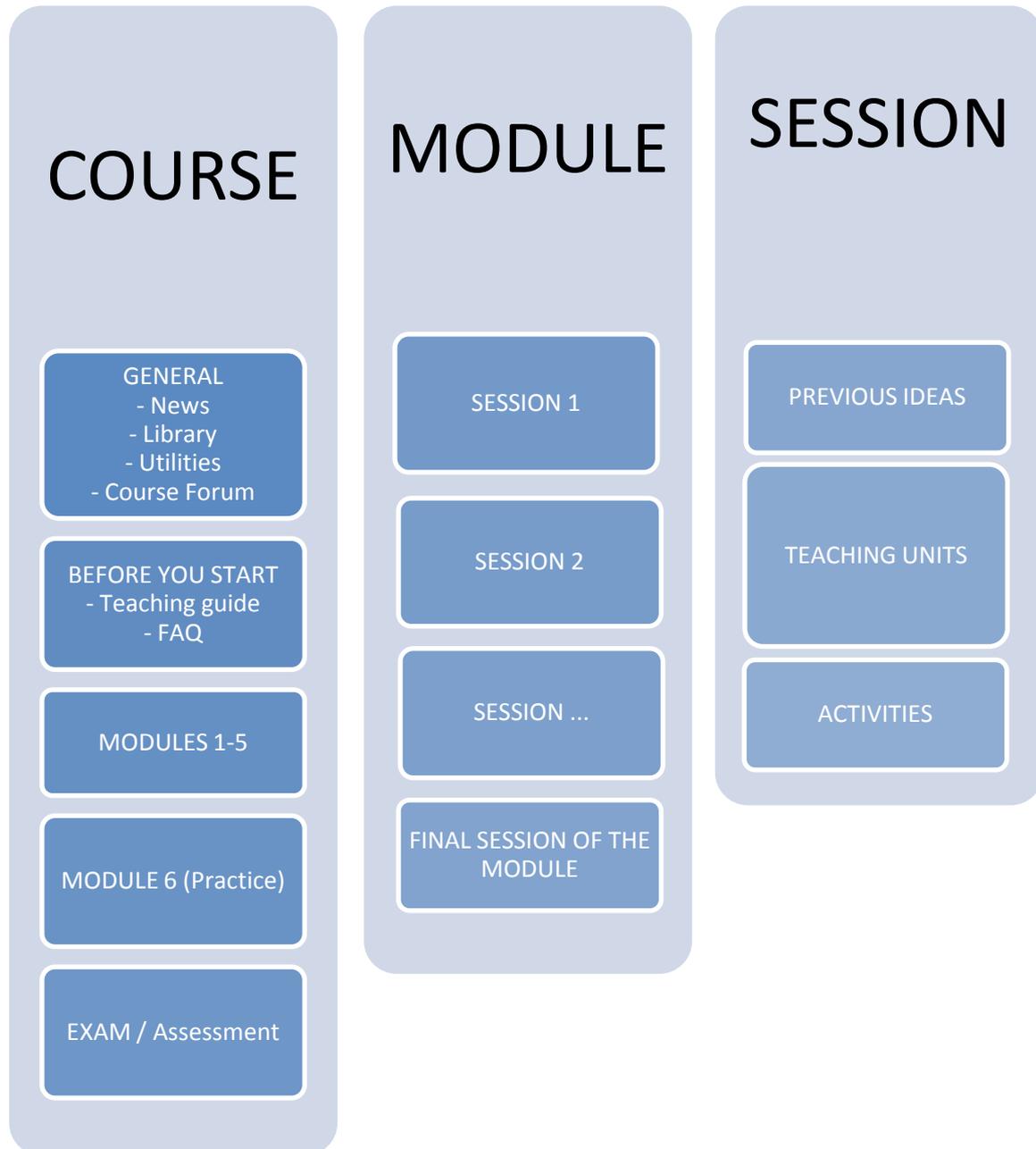


Figure 3: Structure of the PE-ABLE online course.

All modules foresee a specific agenda, in which the following actions will be taken into account:

- Welcome
- Presentation of the module, describing the aims and objectives of sessions

- Development of the didactical sessions (a timetable will specify start time, end time and time breaks), with theoretical and practical sessions as required by the topics being developed.
- Progress evaluation and discussion
- Self- questionnaires
- Review of goal of the training course and user satisfaction test

Each module program will be designed according to the capabilities and existing skills of the trainees. The know-how level of the classroom will affect the final definition of the module and the material that will be distributed.

Course general resources section

The student will find the following general resources for the course:

- **A bulletin board and news:** where the facilitator reminds students of important dates for the course, and any news of interest.
- **The forum of the course:** with the participation of the teacher and the facilitator of the course to answer all questions and inquiries from students,
- **Library:** a collection of resources selected by the teacher of the course,
- **Utilities:** selection of programs that may require the student to follow the course (unzip, pdf and documents viewers, etc.).

Before you begin section

This section is designed for students to review it before starting their study on campus. Consists of:

- **FAQ:** is a collection of answers to questions most often raised by most students on the operation of the online platform,
- **Teaching Guide:** a document specifically developed for each course which contains all the information needed by the students to get the most out of their efforts. This section is organized as follows: *introduction, objectives, agenda, timing, methodology, resources, teaching and assessment team.*

Course content section

The course is divided into **modules**, and modules are composed of **working sessions**.

Each working session is designed for students to spend 2 to 3 hours to complete. The structure of a working session is:

- **Previous ideas:** This is a brief presentation (or summary) to introduce the student about the main topics of the session. This is normally a plain text with ideas, thoughts, etc. It may also include activities, links or external documents to provoke reflexion in the student. The previous ideas can also have a specific question, and the answer to this question can be shared with the other students and provoke a debate into the course forum..

- **Teaching unit:** a downloadable pdf document containing the main topics to study. It is divided into:
 - **Objectives:** are the learning objectives of the **working sessions**,
 - **Topics:** are the main contents developed by the teacher,
 - **Key ideas:** they are the fundamental concepts that emphasizes the teacher as discussed in the session.
- **Activities:** Each work session includes a series of exercises for the student to consolidate the knowledge acquired by putting them into practice.

The **topics** of the teaching units are not developed as plain text (the contents are not a book, but a course). The general structure of each topic will include some of the following **pedagogical resources**:

- **Bibliography and references.** Each unit will include both references cited into the text and additional bibliography recommended to expand the reading. The online structure of the course will permit that the citing is dynamic and each cite can lead to its reference.
- **Images and illustrations.** All the contents will be widely improve and explain with images, tables and graphs. The images will allow not only to explain and expand some concepts treated in the text, but also to ease the reading and insert pauses in the process of studying.
- **Insertions.** To avoid plain text and transform the linear reading into more active reading, the text in each unit will have specific insertions with the purpose of reinforce the content. The main insertions considered for the PE-ABLE course are the following:
 - **Concept.** Important concepts or cites.
 - **Examples**
 - **Remark boxes.** Useful to emphasize or summarize some important concept that you have previously developed.
 - **Enlargement of concepts.** Additional information, that it is not strictly necessary, but that can enlarge the knowledge about one particular topic.

INSERTIONS

Concept

An important concept can be put in this space

Example

You can put here an example to illustrate what you are explaining



This box can be used to emphasize or summarize some important concept that you have previously developed.

Enlargement of content: TITLE

You can put here additional information, that it is not strictly necessary, but that can enlarge the knowledge about one particular topic.

All working sessions of content have the same structure, except the last session of each module: the session "to finish". This session can have the following items:

- **To learn more:** a space to expand knowledge about the topics covered in the module.
- **Self-assessment** : the student must pass an assessment or fulfil a questionnaire to move to the next module. The student can undertake the assessment as many times as he wants. The system will display their successes and mistakes and give information about what content should be reviewed based on their answers. In the case of a formal training system, the realization of the self-assessment is not reflected in the final grade.

3.2. Course contents

Overview

In the next lines we develop the detailed contents of the PE-ABLE course. The course is divided into the following modules:

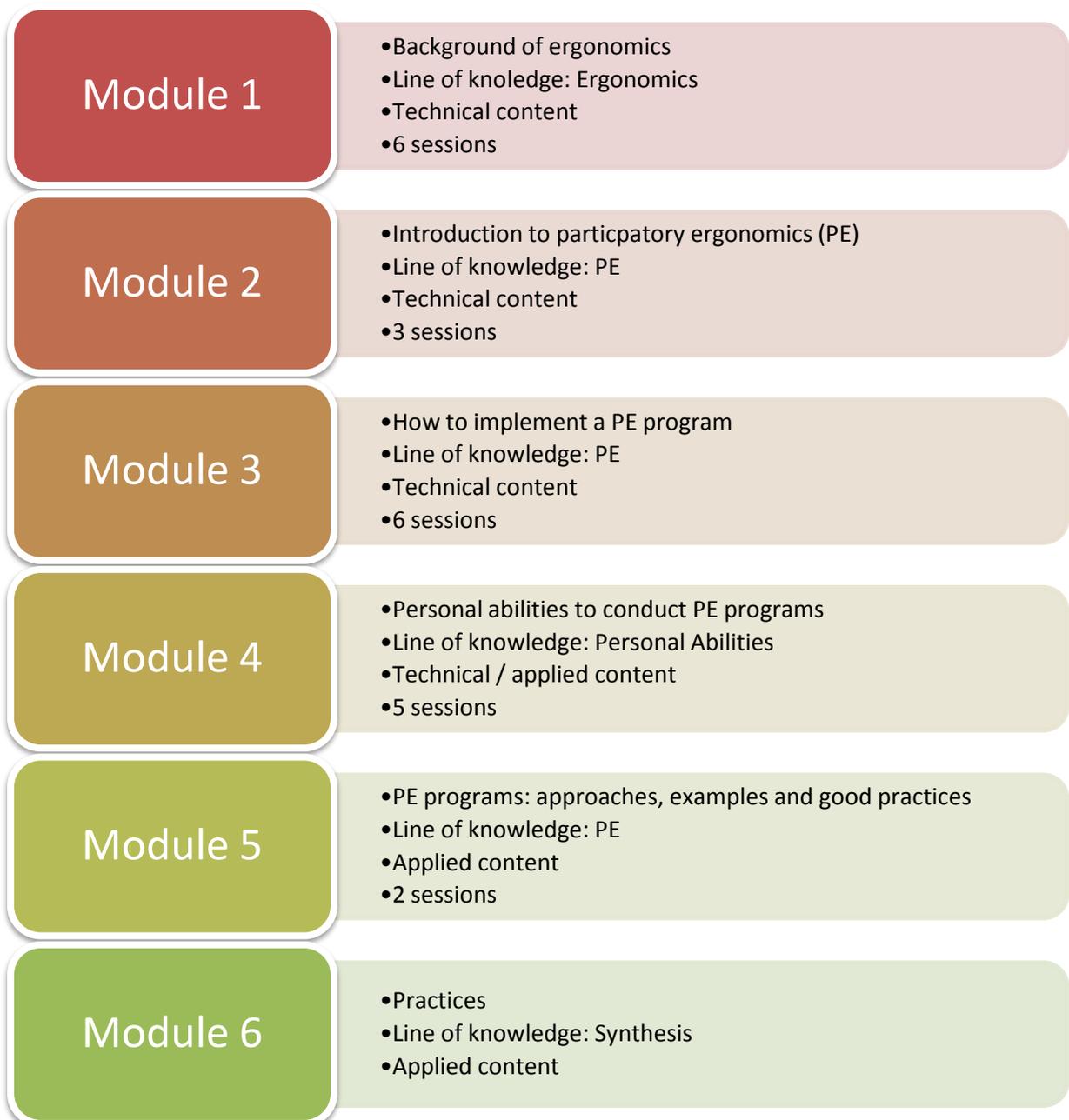


Figure 4: Overview of the PE-ABLE online course.

Course contents development

Module 1: Background of ergonomics

This module will provide a revision of the main ergonomics concepts and fields of application. Some of the concepts developed here will be familiar to some OHS professionals. For that reason the module will combine general topics with more specific content. A special emphasis on the application of ergonomics (techniques and design principles) will be provided in order to give a solid background for the development of participatory ergonomics programs.

The module begins with an introductory session contextualizing the ergonomics and the human factors perspective from its historical perspective. Then the ergonomics concept and its domain its explained and also the areas of application, with an especial emphasis in the workplace ergonomics.

The second session deepens in the concept of hazards and risks, which is central to understand the development of the workplace ergonomics, especially in the physical domain. To do that we will introduce some contents about the functioning of the human body, its relationship with the activities carried out in working environments and how these two elements (workplace demands and human capabilities) can create a cause-effect relationship that sometimes can lead to a musculoskeletal disease.

The third and fourth sessions include very applied content. At first there is a extended protocol on how to evaluate workplace from an ergonomics perspective. Then the session develops some important methods, protocols and techniques that are widely used to assess ergonomics conditions, both general (checklists) and specific (qualitative and quantitative methods to evaluate postures, forces, movements and other working conditions). The fourth session offers a complete and detailed list of recommendations that an ergonomist can use to design a working environment or to correct the risks detected with the techniques explained in the previous session.

Sessions 5 and 6 include advanced concepts that the students can use to enlarge the concepts developed in the whole module. Session 5 deals with some important facts regarding the limits of ergonomics and the problems limitation encountered during research and practical projects. Session 6 deepens in the “brothers and sisters” of ergonomics in the physical, cognitive and organisational domains.

The session and units of module 1 are the following:



Figure 5: PE-ABLE online course Module 1.

Session 1: Introduction to ergonomics

- HF and ergonomics historical review
- Ergonomics domain
- Concept and areas of application

Session 2: Ergonomics hazards and risks

- Ergonomics hazards and risks. Scheme / introduction
- Understanding how the body works / MSD
- Cause-effect relationship between musculoskeletal diseases and risk factors / Interaction between biomechanical and psychosocial factors
- Identifying causes of risk factors

Session 3: State of art on the models, methods and techniques

- Models / How to evaluate workplaces...
- Methods and techniques – Checklists
- Methods and techniques – Qualitative methods
- Quantification of exposure

Session 4 - Recommendations for the ergonomics design of workplaces

- Design of workspaces and equipment
- Design of the working environment
- Macroergonomics. Design of work processes

Session 5 – Limitations of the ergonomics methods

- Physical ergonomics
- Cognitive ergonomics
- Organisational ergonomics

Session 6 - Adjacent professional domains

- Human errors
- Hazard barrier target

Module 2: Introduction to participatory ergonomics (PE)

The second module starts with the main topic of the PE-ABLE course: participatory ergonomics. Participatory ergonomics (PE) is an interactive process in which different actors are involved. It includes a concept a philosophy of action (based on some beliefs regarding participation) and of course in some procedures and techniques that have been developed during research and practice.

The module starts with the concept and definition of PE. This overview includes the main domains and requirements that the OHS professionals should meet to conduct such programs. As PE is not exactly the same as “conventional ergonomics” one important topic is to clarify the benefits of the participatory approach and the differences between this approach and the traditional perspective.

The second session is very important to justify the need of the PE programs and also to locate the methodology and procedures that will be developed during the course. This session will explain the concept of participation (general and in working environments), the participation categories and the philosophy behind this concept (why workers should participate?: right of workers, methodological need, effectiveness of participation). The session will also include the failure (hierarchical structure, traditional approach in work risk prevention, attitudes from professionals and workers,...) and success factors in the participation process. At last, there will be an

specific development on how understands PE the participation process (specific PE approach, definitions of participation from the PE domain, direct and indirect participation).

The last session in this module will address some important topics about the PE application. As PE is not the panacea in work risk prevention, OHS professionals should be aware of the limitations of the participatory interventions. This limitations are caused sometimes for the restricted scope of participation in some environments, but in others the principal factor are the organizational and methodological barriers. To solve these issues the PE leader must take into account the needs and requirements of participatory processes (conditions for success and the importance of stakeholders in the PE process). This session ends with a unit that is devoted to add perspective and future trends in the participatory interventions.

The session and units of module 2 are the following:



Figure 6: PE-ABLE online course Module 2.

Session 1 – What is PE?

- Concept and objectives. Benefits of PE
- Differences between the traditional approach of ergonomics and the PE approach

Session 2 – Participation

- Concept of participation
- Success and failure factors of participation
- How understands PE the participation process

Session 3: PE application

- Limitations of participatory ergonomics
- Organizational and methodological barriers

- Needs and requirements of participatory processes. Conditions for success. Importance of stakeholders in the PE Process
- Research and future trends in PE

Module 3: How to implement a PE program

The third module is the longest in the PE-ABLE course. It will develop in detail the steps to initiate and conduct a PE program in a company. It will also include the main tools and procedures that the professional can use to follow all the steps successfully.

The first session offers the detailed structure of a PE program. This program includes several steps of phases that are developed in this session. The base of the PE interventions consists of entailing all the different departments of the company in the process of diagnosis and solution of the ergonomics problems in workplace, included the workers. Therefore, a very important fact is to know which are the main roles and functions in the PE process.

The second and third sessions explain deeply the phases of the PE intervention. The process flows in nine steps: (1) Introduction, (2) analysis, (3) searching for solutions (Idea generation), (4) solutions selection (idea selection), (5) solutions` design (prototyping), (6) test, (7) adjustment, (8) implementation and (9) evaluation. Often feedback loops between these steps are needed. Sometimes during prototyping (step 5), the idea generation should be redone (step 3) or after evaluation (step 9), further adjustments (step 7) could be needed or a new project or phase starting should be introduced (step 1).

Sessions 4 and 5 develop a set of tools that are commonly used in PE programs. This tools can be used in different phases of the process. They include damage and risk questionnaires, interviews, systematic observation, quantitative methods, and other tools for the intervention, planning, monitoring and control, coordination of activities and teaching/training. There are another very important tools that are those related to the creation and leading of groups. These tools enter into the scope of the personal abilities and skills and will be developed in Module 4.

The session and units of module 3 are the following:

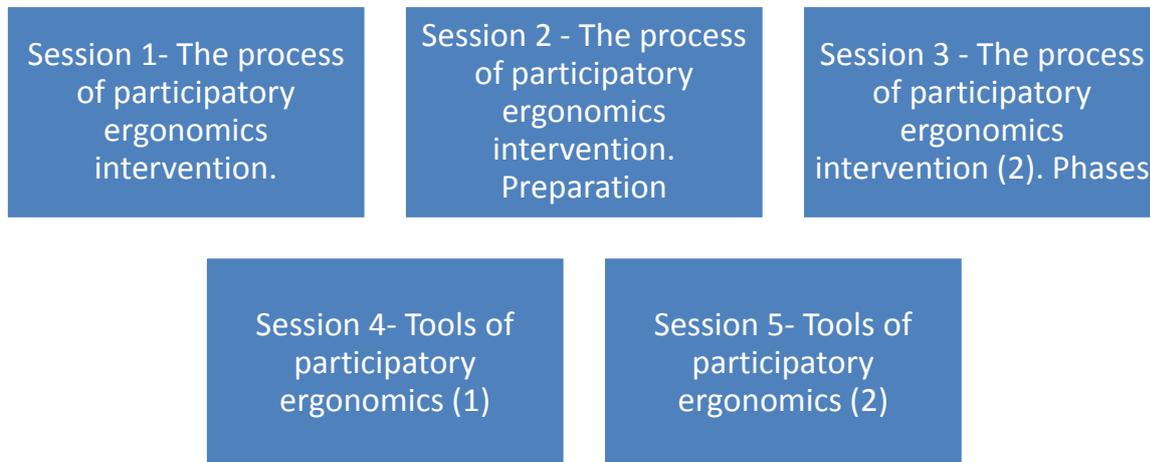


Figure 7: PE-ABLE online course Module 3.

Session 1- The process of participatory ergonomics intervention.

- Overview. Process phases
- Roles and functions

Session 2 - The process of participatory ergonomics intervention. Preparation:

- Agreement with all agents (management and workers representatives)
- PE group composition and formation

Session 3 - The process of participatory ergonomics intervention (2). Phases:

- Diagnostic
- Treatment
- Monitoring and program continuity (evaluation)

Session 4- Tools of participatory ergonomics (1):

- Tools comparative
- Damage and risk questionnaires
- Interviews and observation

Session 5- Tools of participatory ergonomics (2):

- Tools for the intervention
- Tools for planning, monitoring and control for coordination of activities
- Teaching: Planning for training, teaching methodology and educational techniques, evaluation

Module 4: Personal Abilities to conduct PE programs

A characteristic feature of the PE interventions is the formation of one “team” or committee, typically made up of employees or their representatives, managers, ergonomists, health and safety personnel. Once formed, teams usually receive basic training from an expert, most often an ergonomist, to become familiar with ergonomic principles. Once this foundation is in place, the group uses its newly developed knowledge to make improvements in the workplace. Creating and working with this “ergo-group” implies dealing with aspects such as conflict resolution, team working, leadership, motivation, etc. These aspects include specific skills that the PE mentor should have to ensure that the program becomes successful. This module is devoted to explain those personal skills and abilities.

The first session is introductory. It includes the concept and types of personal abilities and the specific aspects of such skills in the working environments. Then explains the relationship between personal abilities (PA) and participatory ergonomics (PE) and deepens in the mentor role and the importance of coordination and motivation in the PE programs.

The following sessions of this module deepen different key personal skills that are very useful in the PE programs. Each session includes a definition of the skill, the areas of application, the potential problems and considerations and some tools and techniques that the professional can use to improve the quality of the work and of the human relations in the PE process. The personal skills that considered in the PE-ABLE course are : *leadership, teamwork, resolution of conflicts, negotiation and communication.*

The session and units of module 4 are the following:



Figure 8: PE-ABLE online course Module 4.

Session 1 – Overview to PA

- What are the personal skills?
- Relationship between personal skills and participatory ergonomics

Session 2 – Leadership

- Team leadership: work dynamics, challenges and specific problems
- Personal characteristics and its impact in the leadership functions
- Different Leadership Styles
- Management of team issues, individual interests and sensitiveness

Session 3 – Teamwork

- Organization of groups
- Groups dynamics
- Motivation and the different types of team work
- Participatory decision making

Session 4 – Resolution of conflicts and negotiation

- Conflicts – positive and negative effects of conflicts
- Causes of conflicts and tensions
- Techniques of conflict resolution
- Competences for assessing and diagnosing potential conflict situations
- Framework of emotional management of conflicts
- Negotiation: Definition, concept and typology
- Agreement and commitment as negotiation techniques
- Positive management of conflicts

Session 5 – Communication

- Phases of the communication process
- Communication techniques
- Active listening
- Assertive communication
- Persuasive communication
- Interpersonal communication: barriers

Module 5: PE programs: approaches, examples and good practices

The last module of study in the PE-ABLE course is devoted to develop practical applications to implement PE programs. Although the professional has to know the background, phases and tools developed in the previous models, in some occasions is very useful to have some “ready-to-use” procedures that can be applied in different situations and environments. There are several institutions and organisations that have developed detailed protocols to implement PE programs. In the first session of this module the student will have the opportunity to check some of them (IRSST of Quebec, Blueprint PE procedure and ERGOPAR of Spain). The session will explain for each procedure the context of use, modes of intervention and process/steps.

The second module will introduce some examples and good practices developed in different sectors (mainly industrial but also others like in primary or services) and in different countries. Moreover, an extensive revision of PE interventions in the scientific literature will give the student a broader scope.

The session and units of module 5 are the following:

Session 1 - Procedures of participatory ergonomics

Session 2 - Experiences of application and good practices

Figure 9: PE-ABLE online course Module 5.

Session 1 - Procedures of participatory ergonomics

- Specific procedures in PE programs. Overview
- Canadian approaches
- ERGOPAR method (Spain)

Session 2 - Experiences of application and good practices

- Global overview
- Experiences of application of the ERGOPAR method in Spain
- Other experiences
- PE application in scientific research

Module 6: Practices

The main goal of this module will be to put into practice the knowledge and skills acquired at the previous modules. The practices will be based on the development of a simulated environment (Basic course, EQF level 5) or the development of a PE program in a company (Extended course, EQF level 6).

4. Evaluation methods

Online teaching implies a different structure than in the traditional training process. The partial or total absence of a “present” teacher implies the establishment of other specific roles. The assessment process must be also different and the emphasis is focused in a multifocal evaluation in different moments combining the classical approach (exams and practices) with the “continuous assessment” provided by the different activities during the modules and the sessions of the course.

The PE-ABLE course has defined the following structure in the training process.

4.1. Roles involved in online teaching

The delivery of online teaching involves two distinct roles:

- **Course facilitator:** their task is to maintain the contact directly to the student, welcome to the course and follow its evolution in it, by contacting him to motivate and help if needed. The dynamic course prepares a recommended study schedule so that students can follow the course successfully, and schedule a follow-up series of milestones on this schedule. At each scheduled milestone tracking monitors the progress of each student and contact him to remind where he should go on schedule and encourage him if he delay, or to give encouragement and congratulations if he is on time. This role is played by a training officer of IBV.
- **Professor of the course:** is the expert on the subject. Their job is to perform the functions of academic tutoring. This role is played by the experts in the contents of each of the partners.

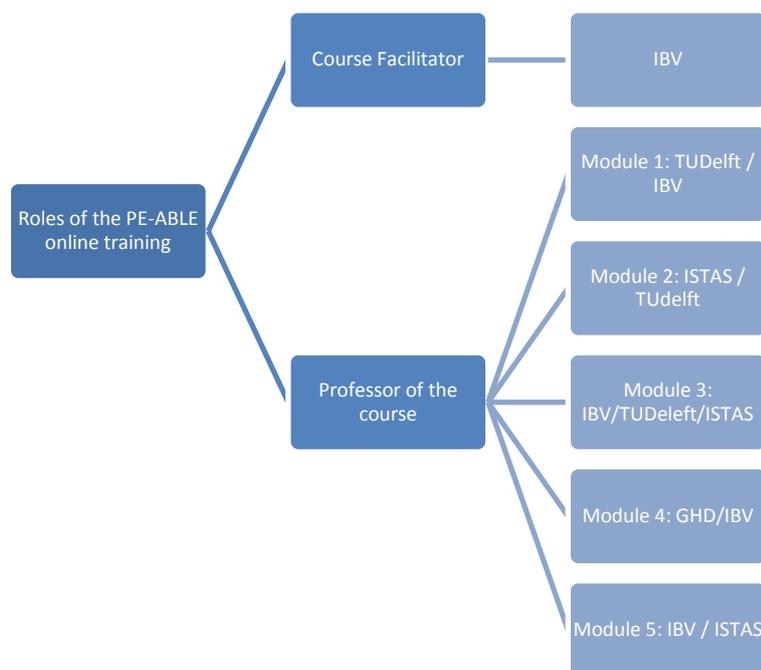


Figure 10: PE-ABLE online course: main roles.

4.2. Course assessment

The final grade can consider different evaluation methods. The selection of the methods and their weight in the final grade can be different depending on the level of the course (EQF 5 or 6) and of other factors (professionals participating, formal or informal course, whole or partial course, etc). The modularity of the course recommends to let this space quite open, although the final prototype of the PE-ABLE course will include different assessment possibilities, for example:

- Final exam
- Practical activities
- Attendance to presential sessions
- The grade obtained by carrying out activities in the online training platform: both those associated with the activities proposed in the working sessions, such as participation in the forum

5. Recognition framework

The PE-ABLE course will be established as **Non-formal training**. Non-formal learning is not provided by an education or training institution and typically does not lead to certification. However, it is intentional on the part of the learner and has structured objectives, times and support. This means that the PE-ABLE course won't be initially integrated into the formal training system, but that it will be offered directly to professionals that want to improve their knowledge and practice in participatory ergonomics.

However, the course structure and contents have been designed to be easily adapted into formal or academic training. To do this we have used the **European Qualifications Framework (EQF)**.

The EQF aims to relate different countries' national qualifications systems to a common European reference framework. Individuals and employers will be able to use the EQF to better understand and compare the qualifications levels of different countries and different education and training systems. It takes into account the diversity of national systems and facilitates the translation and comparison of qualifications between countries.

The core of the EQF concerns eight reference levels describing what a learner knows, understands and is able to do – 'learning outcomes'. Levels of national qualifications will be placed at one of the central reference levels, ranging from basic (Level 1) to advanced (Level 8). This will enable a much easier comparison between national qualifications and should also mean that people do not have to repeat their learning if they move to another country.

The EQF applies to all types of education, training and qualifications, from school education to academic, professional and vocational. This approach shifts the focus from the traditional system which emphasises 'learning inputs', such as the length of a learning experience, or type of institution. It also encourages lifelong learning by promoting the **validation of non-formal and informal learning**.

We have assigned some EQF levels to the PE-ABLE course. To do this, we have analysed the course objectives, the users (professionals) that are the target of the course, and the structure and contents. The main result is that **PE-ABLE course will be a training program located in EQF levels 5 and 6:**

- **EQF level 5.**
 - The features of EQF level 5 are the following:
 - Knowledge: comprehensive, specialised, factual and theoretical knowledge within a "eld of work or study and an awareness of the boundaries of that knowledge.

- Skills: a comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems.
- Competence: exercise management and supervision in contexts of work or study activities where there is unpredictable change. Review and develop performance of self and others,
- The basic PE-ABLE course (70 hours) will be included in this level
- **EQF level 6.**
 - The features of EQF level 6 are the following:
 - Knowledge: advanced knowledge of a field of work or study, involving a critical understanding of theories and principles
 - Skills: advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study.
 - Competence: manage complex technical or professional activities or projects, taking responsibility for decisionmaking in unpredictable work or study contexts. Take responsibility for managing professional development of individuals and groups.
 - The advanced PE-ABLE course (120 hours) will be included in this level. The contents are the basic course and some extended units and practice.

At the course contents (see paragraph 3) the units and lessons are marked in function of their adscription to an EQF level. Contents of level 5 are also included at the level 6 course.

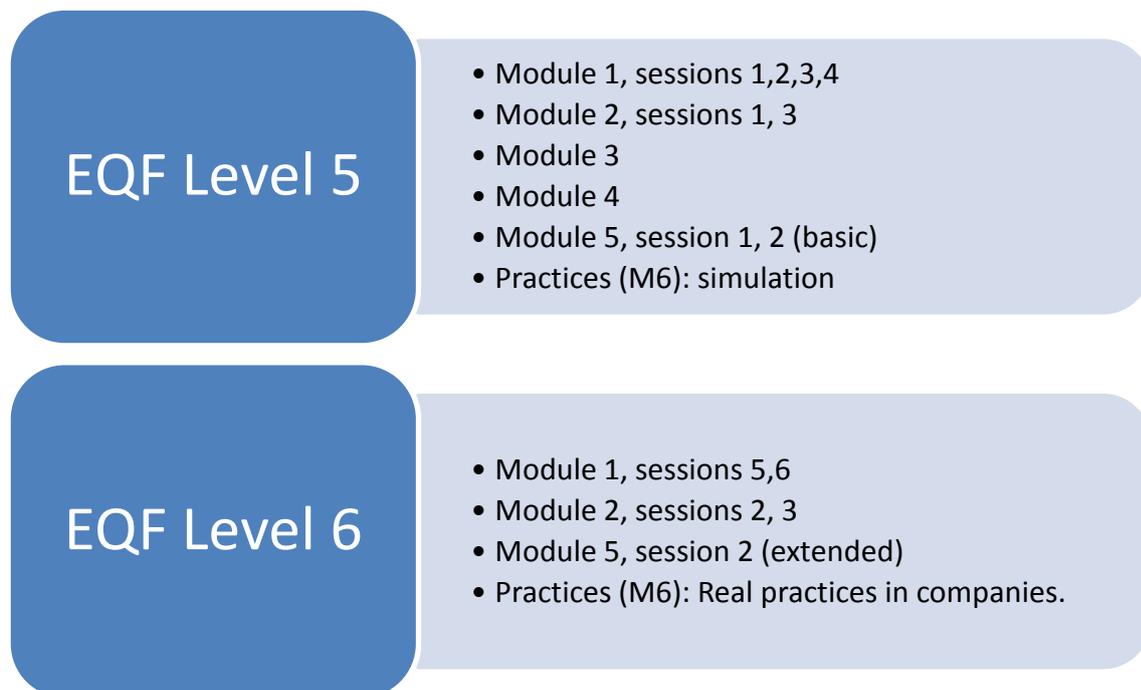


Figure 11: Distribution of EQF levels at the PE-ABLE contents.

HOURS	EQF5	EQF6	TOTAL
M1	12	5	17
M2	9	6	15
M3	27	0	27
M4	18	0	18
M5	4	39	43
TOTAL	70	50	120

Table 1: Distribution of EQF levels at the PE-ABLE structure.

The transformation of the PE-ABLE course into formal training won't be part of this project, although the different partners can adopt this framework and adapt their national versions. To do this the "European guidelines for validating non-formal and informal learning" (http://www.cedefop.europa.eu/EN/Files/4054_en.pdf) will be followed.

6. Conclusion

The study presented provides a comprehensive program on participatory ergonomics for both a non-formal, and an academic environment with two EQF levels; a basic course of 70 hours (level 5), and an advanced course of 120 hrs (level 6). All aspects of participatory ergonomics will be addressed, its history, its method, and factors influencing its effectiveness. The basic element of the course is the session, and multiple sessions will be combined in modules. These sessions are centred on knowledge transfer, leading to competencies, which will be tested in a last practical module where students can demonstrate the knowledge, skills, and competencies acquired during the course.