PLANET

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PLANET – PLan for Agriculture reNewable Energy Training

D4.2 - Developed hosting platform	
Document description:	The hosting platform will present an architecture ready to integrate the training content.
Partner responsible:	UNITO
Due date:	Thursday, 31 May, 2018
Work package title:	Development of the learning platform
Task title:	Task 4.2: Design and development of the hosting platform
Status (F: final; D: draft; RD: revised draft):	F

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1 Task description

UNITO will develop the hosting platform according to the specifications developed in Task 4.1. This task will deal with the general structure of the platform.

The platform will host the four modules (ICT basic skills, biogas, solid biomass and solar energy) in five different languages for a total of 20 modules and 50 weeks of online training for the target groups. The software selected to host the platform will allow open, free of charge access 24 hours a day to the platform after the end of the project.

Accredited trainers will have access to both trainer and trainees section. It will allow the trainers to access to the trainers' toolkit and online courses and the trainees to access the online training. Learners will register only to modules available within the trainee's part.

2 Hosting platform description

As described in the D4.1, the hosting platform chosen is Moodle, a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environments.

Powering tens of thousands of learning environments globally, Moodle is trusted by institutions and organisations large and small, including Shell, London School of Economics, State University of New York, Microsoft and the Open University. Moodle's worldwide numbers of more than 90 million users across both academic and enterprise level usage makes it the world's most widely used learning platform.

Because it is open-source, Moodle can be customised in any way and tailored to individual needs. Its modular set up and interoperable design allows developers to create plugins and integrate external applications to achieve specific functionalities.

2.1 Licensing, data security and user privacy

Moodle is provided freely as Open Source software, under the GNU General Public License. Anyone can adapt, extend or modify Moodle for both commercial and non-commercial projects without any licensing fees and benefit from the cost-efficiencies, flexibility and other advantages of using Moodle. The PLANET Consortium therefore decided to use Moodle and adapt it to the training needs.

Regarding data security and user privacy, security controls are constantly being updated and implemented in Moodle development processes and software to protect against unauthorised access, data loss and misuse. UNITO, which is in charge for the creation of the platform, will update monthly the core of Moodle and its plugins to have always the latest updates on security. Finally, communication between the server and the client applications are encrypted using the HTTP-Secure protocol, which ensures data confidentiality during the connections.

2.2 User Access

Considering that there will be two sections in the PLANET platform, one for trainers and one for trainees, and the PLANET consortium will control the access to both sections:

Registration for trainers: the PLANET consortium wants to grant access to the trainers' section only those trainers who meet a set of pre-defined eligibility criteria, consequently the PLANET platform administrator (in the person of Alessandro Sopegno, UNITO) can grant access to a list of potential trainers and their email addresses. The administrator would then grant them access to trainers' section by creating a user account linked to their email addresses.

Registration for trainees: It will be used the same procedure described in the registration for trainers, but the registration process will be managed from the PLANET consortium training centres under the supervision of the PLANET platform administrator (in the person of Alessandro Sopegno, UNITO).

2.3 Sections available and navigation

With over 10 years of development guided by social constructionist pedagogy, Moodle delivers a powerful set of learner-centric tools and collaborative learning environments that empower both teaching and learning. This allowed the same platform to be used for both trainee and trainers training.

For this purpose, there are two separate sections available in the platform:

1. Trainees section, containing all the material for the learning modules for trainees: the on-line, in-class content and the guidelines for the work-based learning period.
2. Trainer section, containing all the material for the trainers' training toolkit that aims at giving to the trainers the tools and competences to use properly the training content created in WP2 and the necessary skills to manage the flipped classroom with online, in class activities and work-based periods.

Regarding the navigation, a simple interface, drag-and-drop features, and well-documented resources make this Moodle platform easy to learn and use. Furthermore, Moodle provides the most flexible tool-set to

support both blended learning and 100% online courses. Moreover, for this reason the PLANET consortium through the complete range of built-in features of Moodle, including external collaborative tools such as forums, wikis, chats and blogs, made the e-learning portal using Moodle.

Another important aspect to consider is that Moodle can be scaled to support the needs of both small classes and large organisations. Because of its flexibility and scalability, Moodle has been adapted for use across education, business, non-profit, government, and community contexts. In addition, it is perfect for the multi-lingual and multi-national training that will be developed for PLANET. Finally the platform is web-based and so can be accessed from anywhere in the world. With a default mobile-compatible interface and cross-browser compatibility, content on the Moodle platform is easily accessible and consistent across different web browsers and devices.

In respect of the specification of D4.1, simply perceivable icons are available and help users to visualize information what they stand for and what the user have to expect. In general, as it is possible to see in all the images of chapter 3 of this document, to simplify the user experience, we made large icons that once the user click lead to the material they want to see. This applies to videos, documents, presentations with notes and external links. Following the icons:

- preview of the video 
- documents icon 

- documents with notes 

- external link icon 

2.4 Languages available

Moodle's multilingual capabilities ensure there are no linguistic limitations to learning online. The Moodle community has begun translating Moodle into more than 120 languages (and counting) so users can easily localise their Moodle site, along with plenty of resources, support and community discussions available in various languages.

Thanks to these features, it was possible to develop the multilingual aspect of the platform, which is available in the following 5 languages:

- English
- Italian
- Dutch
- French
- German

This will allow, after the optimisation that will be performed in Task 4.5 and the translation that will be performed in Task 2.4 (for the trainees modules) and Task 3.3 (for the trainers module) to show all the contents for the trainees and for the trainers in the 5 languages available.

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3 Results: Online platform overview

In this chapter, you can see the result obtained after applying the specifications of D4.1 to create the e-learning platform of the PLANET course. As an example in this chapter, the entire day 3 of biomass module online content is shown.

The following is the main page of the e-learning platform made for the PLANET project, in which it is possible to see the list of all available courses of the PLANET training course.

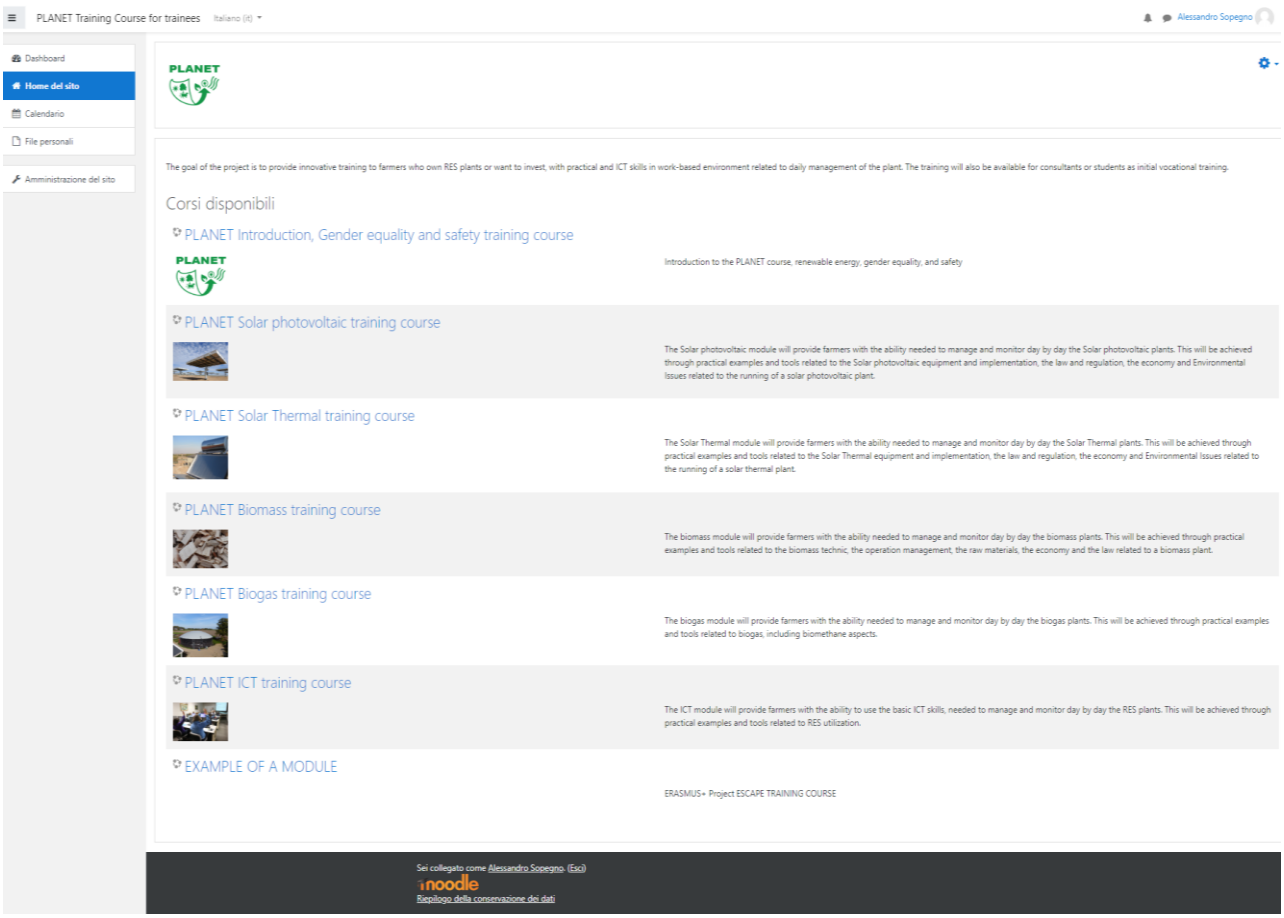

Figure 1 - overview of the e-learning platform

As you can see in figure 1, in the section dedicated to trainees there are 5 modules:

- PLANET Introduction, Gender equality and safety training course
- PLANET Solar photovoltaic training course
- PLANET Solar Thermal training course
- PLANET Biomass training course
- PLANET Biogas training course
- PLANET ICT training course

These modules are available also for the trainers sections. Through this screen, trainees or trainers can enter the individual modules to view the training contents

3.1 Example of a course: Biomass training course overview

The following is an example of the main page of the PLANET Biomass training course made for the PLANET project, in which it is possible to see the list of all available days of contents.

As it is possible to see in figure 2, once entered a module (in this case the biomass module), sub-modules are available divided into days. For each training day then the trainees can enter and see the relative contents related to the learning objectives by clicking in the photo or in the link below.

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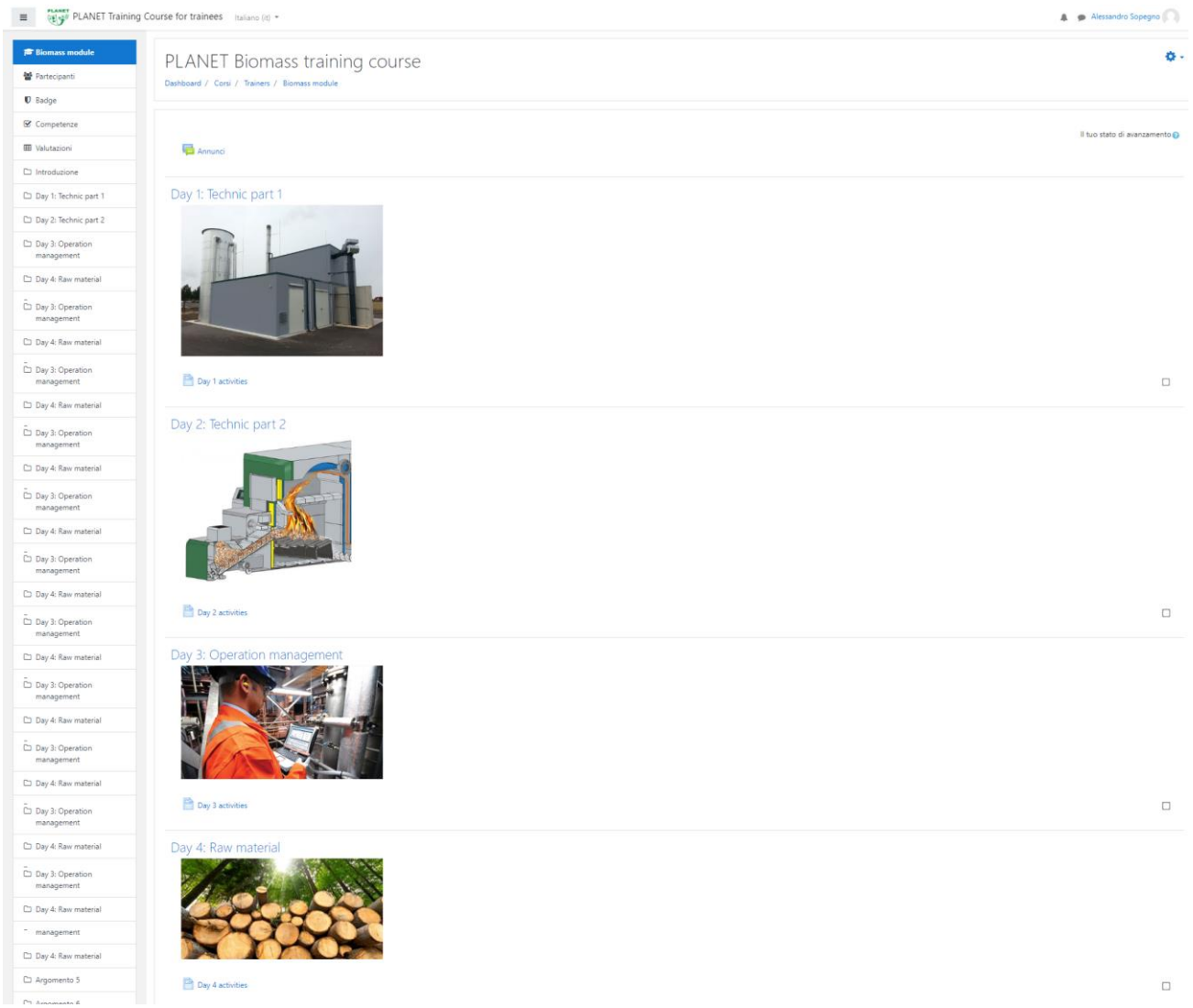
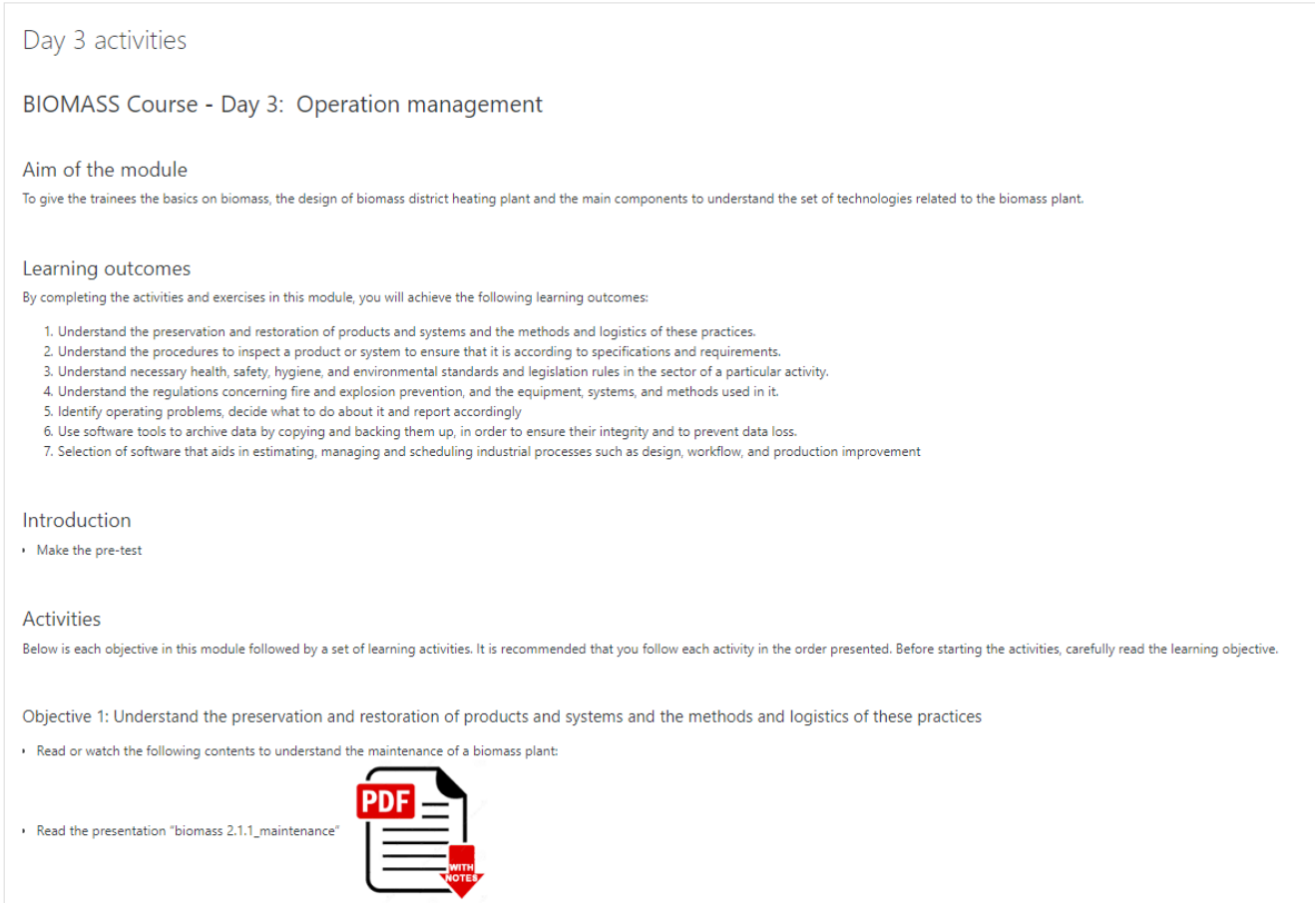


Figure 2 - the main page of the biomass course

3.1.1 Example of a day: Biomass training course day 3 overview

The following is an example of the day 3 of the biomass course.



Day 3 activities

BIOMASS Course - Day 3: Operation management

Aim of the module

To give the trainees the basics on biomass, the design of biomass district heating plant and the main components to understand the set of technologies related to the biomass plant.

Learning outcomes

By completing the activities and exercises in this module, you will achieve the following learning outcomes:

1. Understand the preservation and restoration of products and systems and the methods and logistics of these practices.
2. Understand the procedures to inspect a product or system to ensure that it is according to specifications and requirements.
3. Understand necessary health, safety, hygiene, and environmental standards and legislation rules in the sector of a particular activity.
4. Understand the regulations concerning fire and explosion prevention, and the equipment, systems, and methods used in it.
5. Identify operating problems, decide what to do about it and report accordingly
6. Use software tools to archive data by copying and backing them up, in order to ensure their integrity and to prevent data loss.
7. Selection of software that aids in estimating, managing and scheduling industrial processes such as design, workflow, and production improvement

Introduction

- Make the pre-test

Activities

Below is each objective in this module followed by a set of learning activities. It is recommended that you follow each activity in the order presented. Before starting the activities, carefully read the learning objective.

Objective 1: Understand the preservation and restoration of products and systems and the methods and logistics of these practices

- Read or watch the following contents to understand the maintenance of a biomass plant:
- Read the presentation "biomass 2.1.1_maintenance"

Figure 3 - example of the day 3 of the biomass course

As it is possible to see, once entered in a day of the previous screen, in the example, day 3 of the biomass module, the following contents are provided:

- The aim of the module;
- The learning outcomes;
- The introduction

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- The activities, represented by self-made video, YouTube video, pdf, pdf with notes, external documents, and external links are available for each of the learning outcomes listed in the first section.

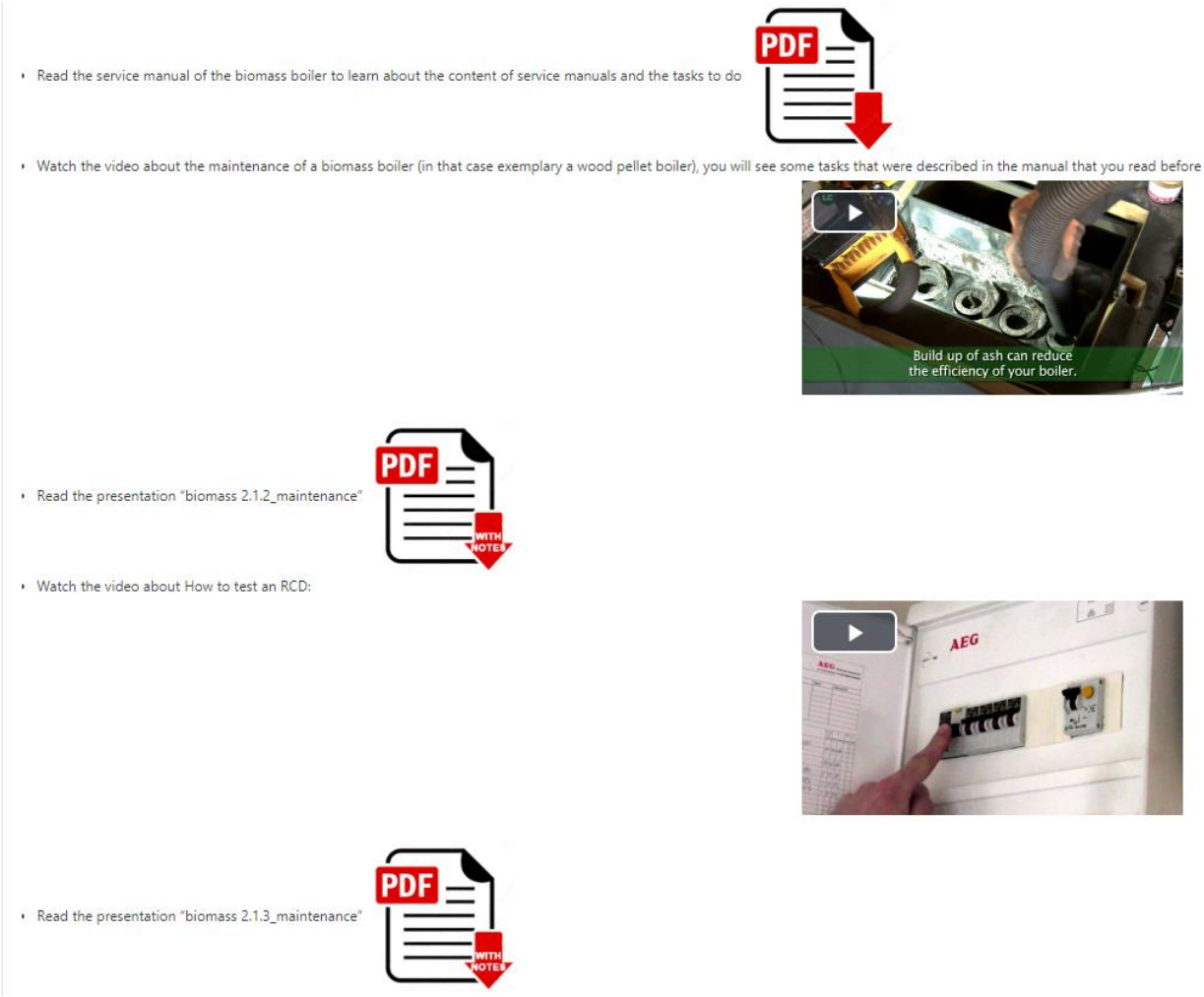

Figure 4 – contents available for day 3 of the biomass module, objective 1

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As it is possible to see in the figure 4, the activities proposed for the day 3 of the biomass module, objective 1 are to watch some YouTube video, but also to study some presentations with notes. The PLANET consortium, specifically the content providers' partners, made all the contents showed in the image.

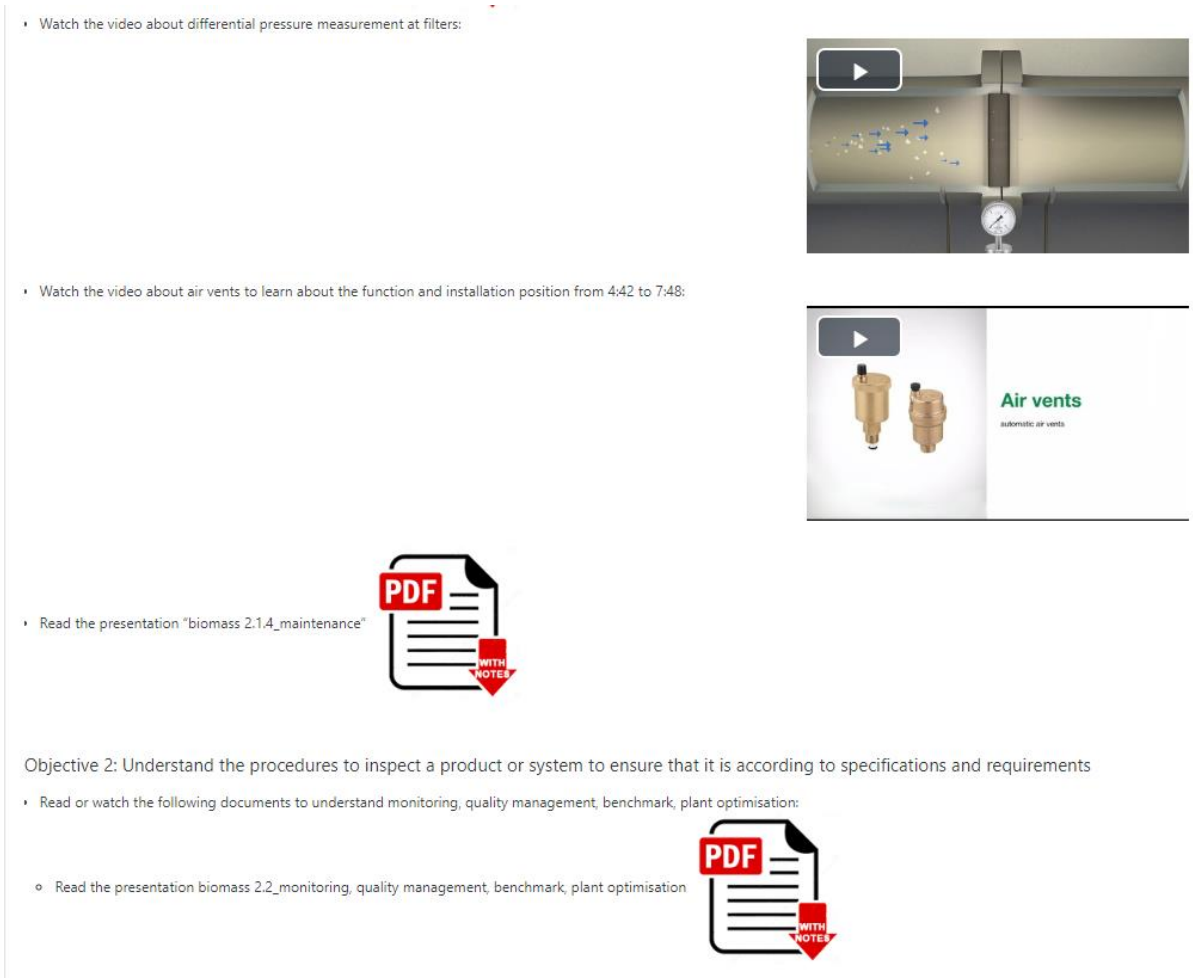

Figure 5 - contents available for day 3 of the biomass module, objective 1 and 2

As it is possible to see in the figure 5, the activities proposed for the day 3 of the biomass module, objective 2 are to study some presentations with notes.

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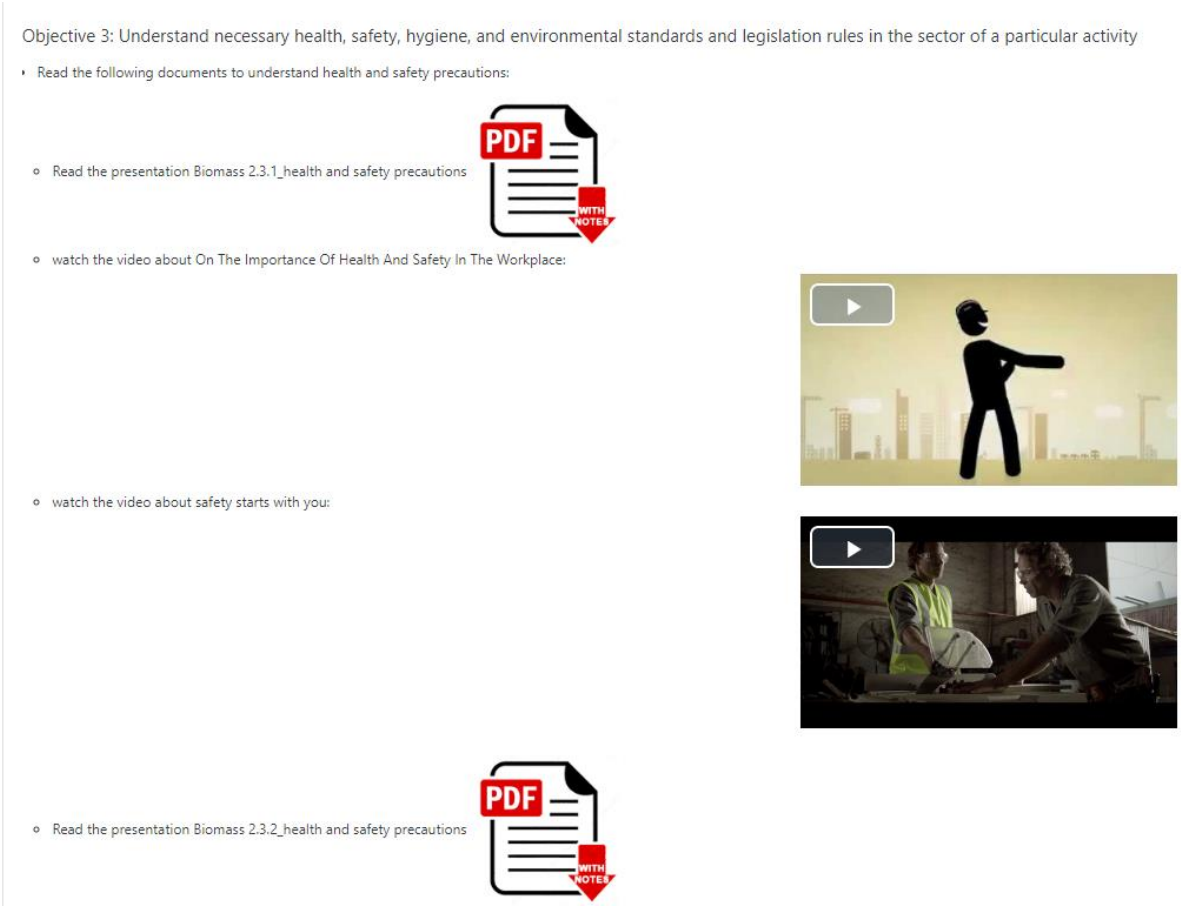

Figure 6 - contents available for day 3 of the biomass module, objective 3

As it is possible to see in the figure 5, the activities proposed for the day 3 of the biomass module, objective 3 are to study some presentations with notes and watch some YouTube videos.

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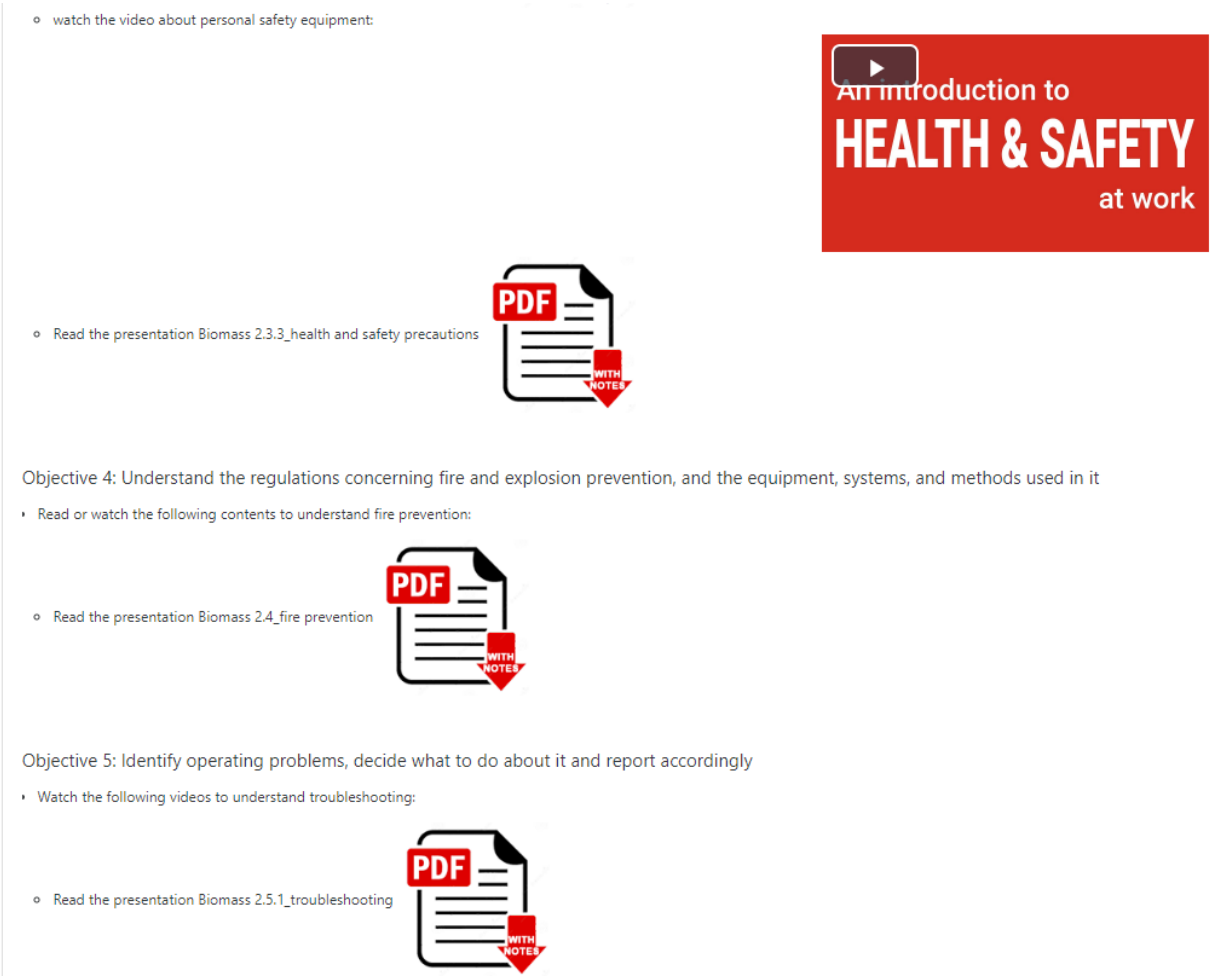

Figure 7 - contents available for day 3 of the biomass module, objective 4

As it is possible to see in the figure 7, the activities proposed for the day 3 of the biomass module, objective 4 are to study some presentations with notes.

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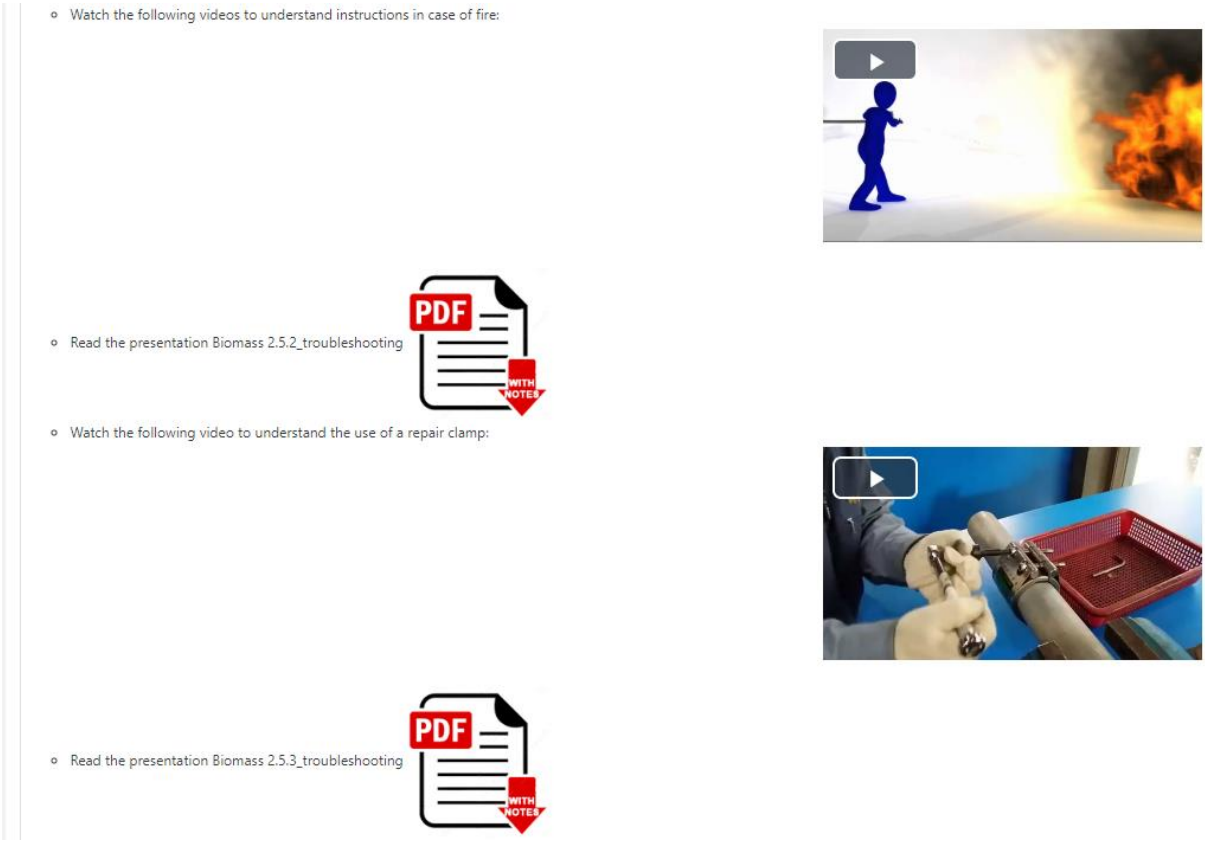

Figure 8 - contents available for day 3 of the biomass module, objective 5

As it is possible to see in the figure 8, the activities proposed for the day 3 of the biomass module, objective 5 are to study some presentations with notes and watch some YouTube videos.

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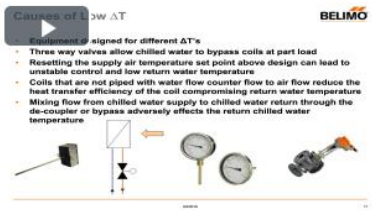
- Watch the following video to understand the ash box disposal on a biomass boiler:

- Read the presentation Biomass 2.5.4_troubleshooting

- Watch the following video to understand the ash box disposal on a biomass boiler:



Objective 6: Use software tools to archive data by copying and backing them up, in order to ensure their integrity and to prevent data loss

- Watch the following videos to understand data backup:

- Read the presentation Biomass 2.6_data backup

Figure 9 - contents available for day 3 of the biomass module, objective 6 part 1

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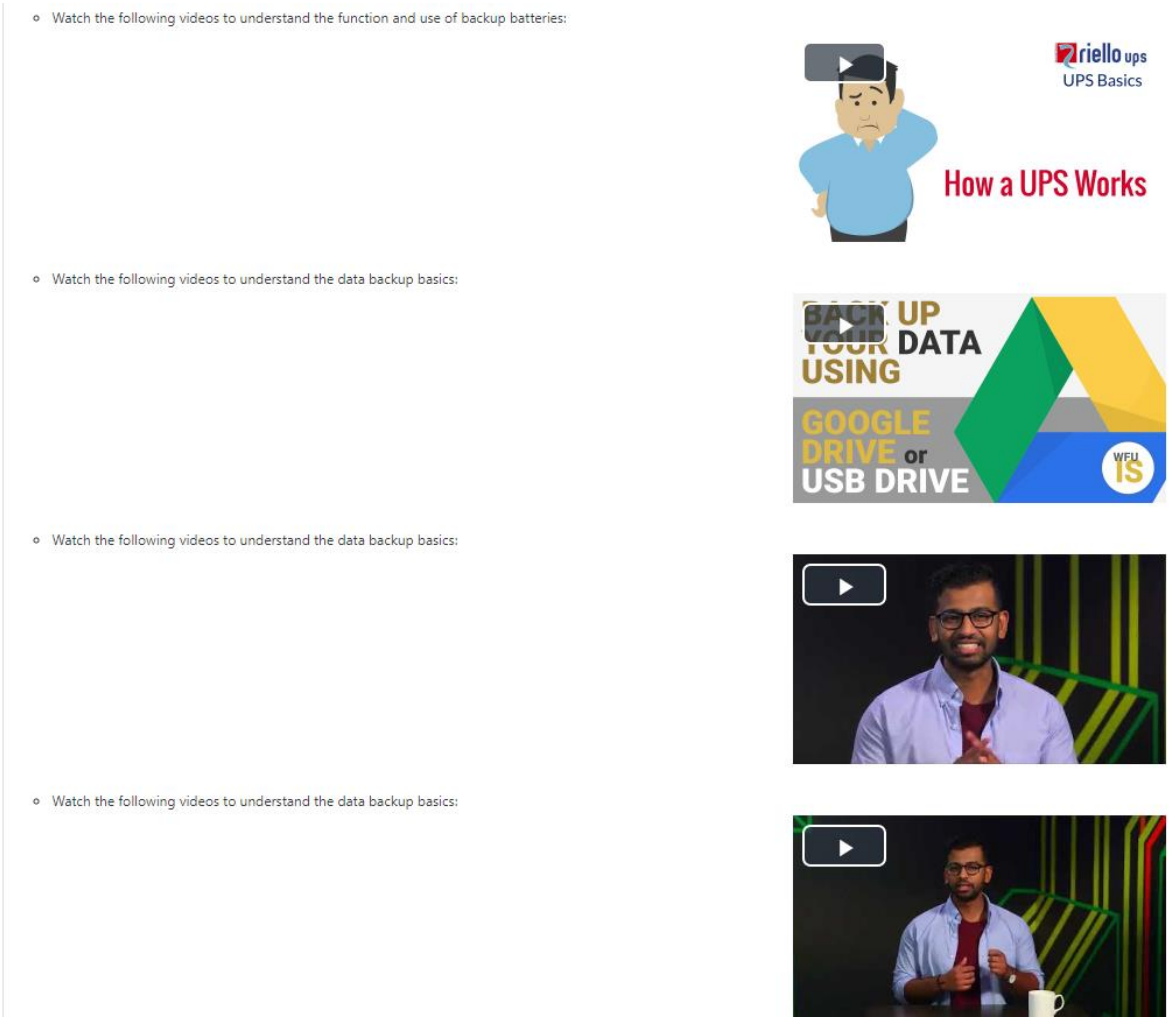

Figure 10 - contents available for day 3 of the biomass module, objective 6 part 2

As it is possible to see in the figure 9 and 10, the activities proposed for the day 3 of the biomass module, objective 6 are to study some presentations with notes and watch some YouTube videos.

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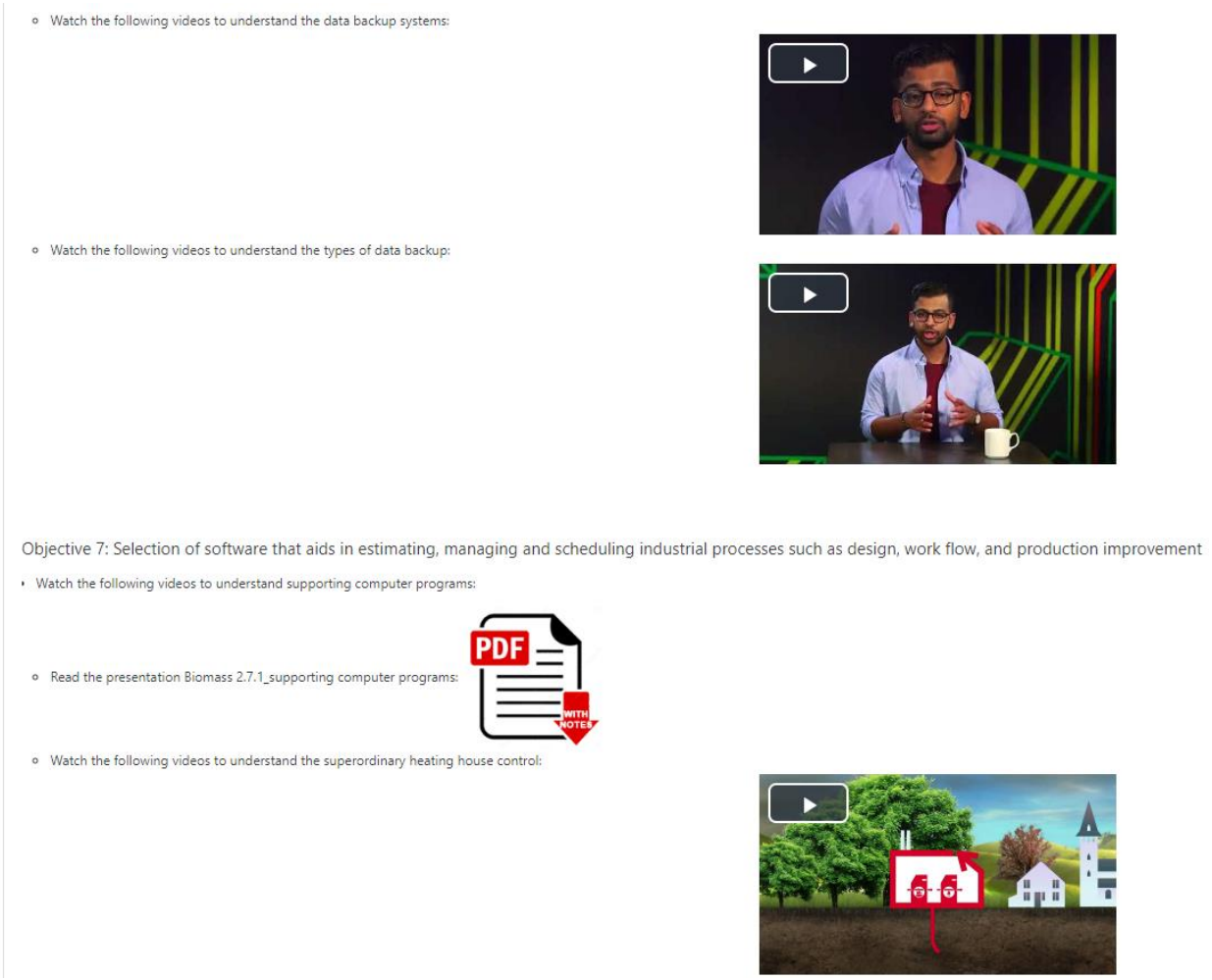

Figure 11 - contents available for day 3 of the biomass module, objective 7 part1

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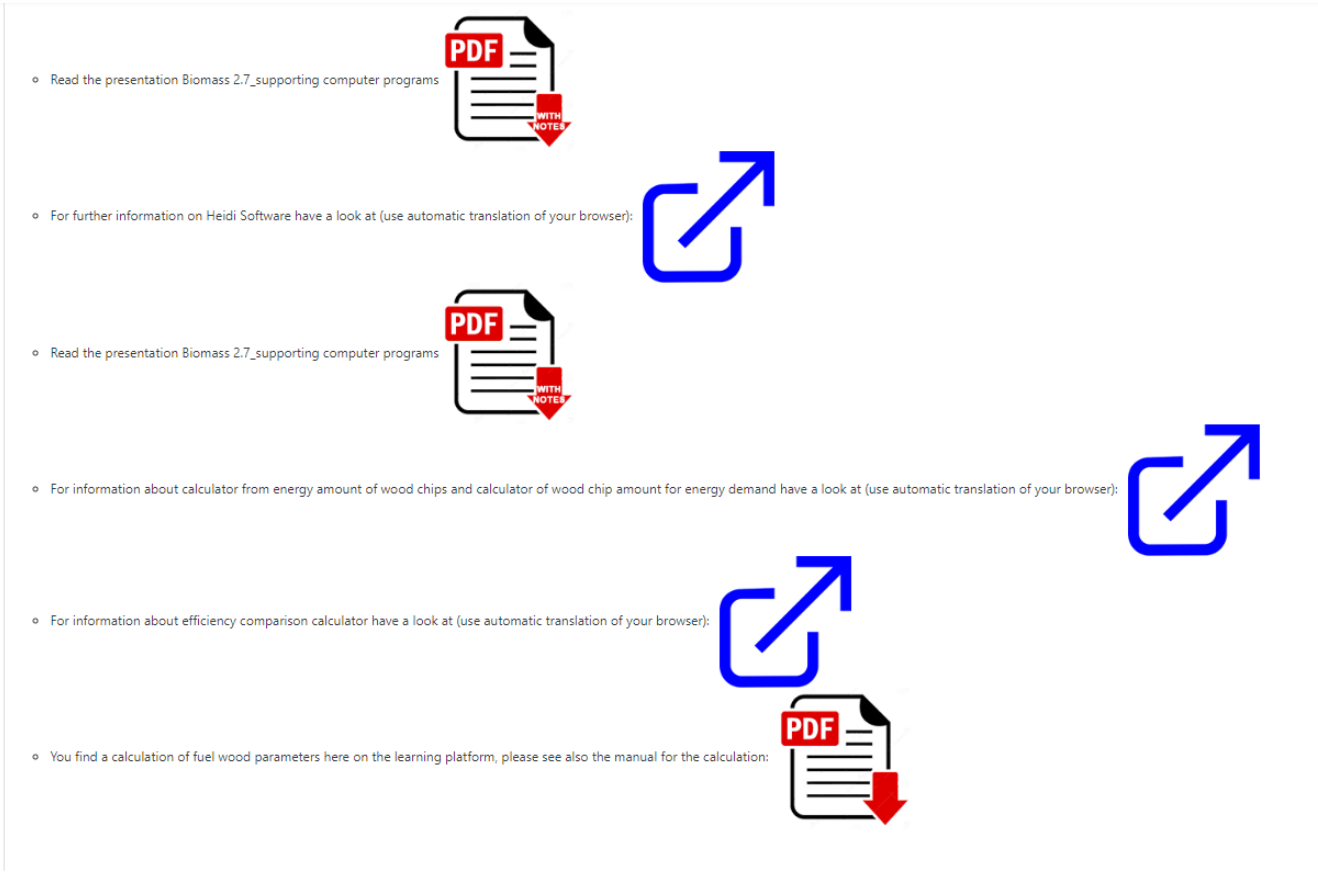

Figure 12 - contents available for day 3 of the biomass module, objective 7 part2

As it is possible to see in the figure 11 and 12, the activities proposed for the day 3 of the biomass module, objective 7 are to study some presentations with notes, watch some YouTube videos and have a look at some external videos.

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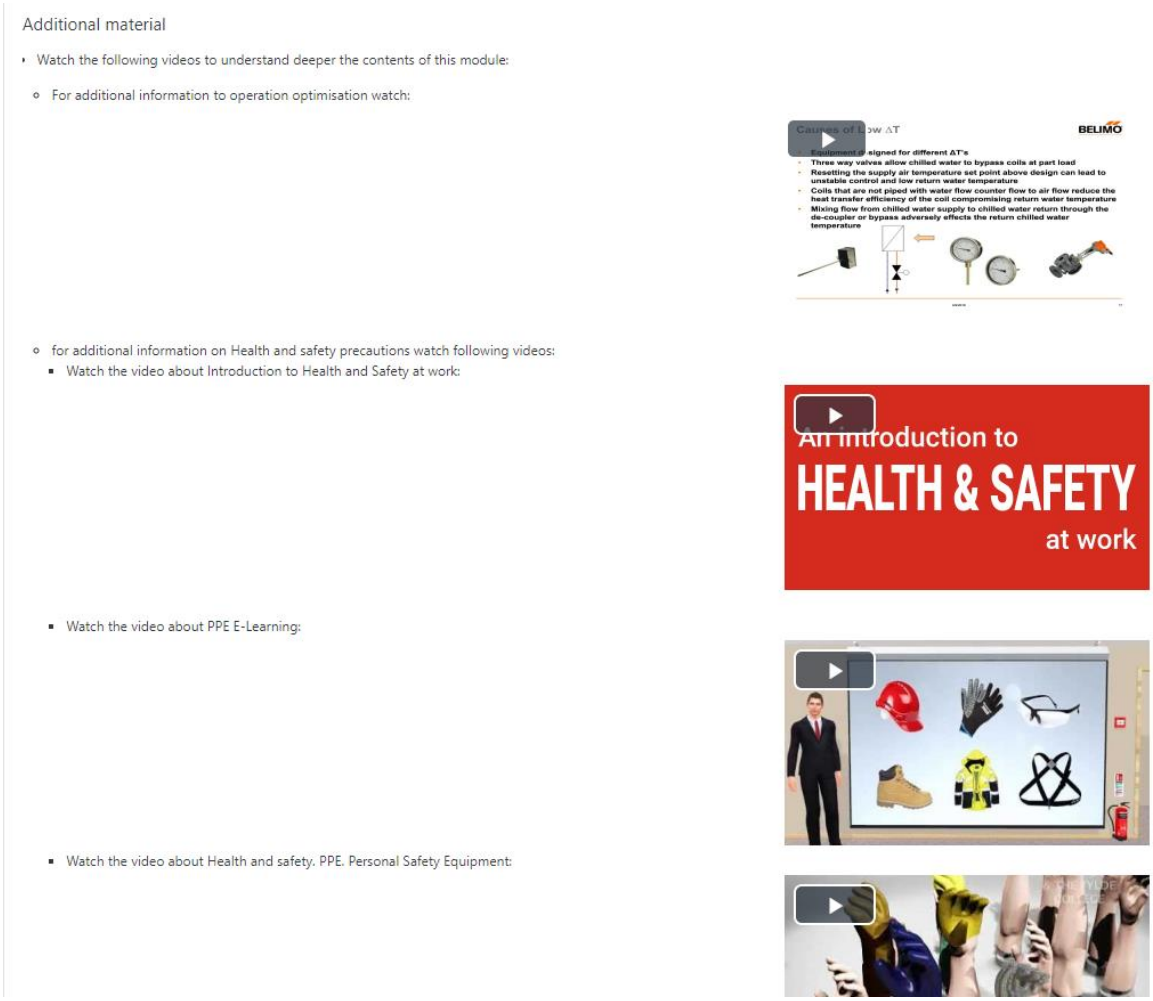

Figure 13 - contents available for day 3 of the biomass module, additional materials

As it is possible to see in the figure 13, the additional materials proposed for the day 3 of the biomass module, are to watch some YouTube videos. The additional material is meant to deepen the topics for the trainees. However, it will not be an exam subject; consequently, no questions will be asked about this material in the exam.