



D8.8 FULL COURSEWARE OF THE ONLINE COURSES

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Executive summary

Deliverable D8.8, Full courseware of the online courses, is not formally a report. This document complements the courseware for online introductory courses to DiDIY, and specifies the guidelines to set up and run the same courses. This document describes the requirement and constraints for this deliverable, and the structure, web platform and management procedures that have been consequently defined and implemented for the first session of the same courses. After this formal release, with an Open License on the DiDIY Project website, updated versions of the full courseware will be possible.

Revision history			
Version	Date	Created / modified by	Comments
0.0	10/03/16	FKI	First, incomplete draft, resulting from the discussions at the February 2016 Project Meeting
0.1	20/03/16	FKI and all partners	Extensions, fixes, etc.
0.2	25/03/16	FKI and all partners	Extensions, fixes, etc.
0.3	29/03/16	FKI and all partners	Extensions, fixes, etc. First formal distribution to SB.
1.0	31/03/16	LIUC	Approved version, submitted to the EC Participant Portal.



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1. Introduction

Online courses are an important dissemination means for the Project, aimed at spreading the information on the many aspects of the phenomenon of DiDIY, and at increasing the interest on it.

The section 2 describes all the requirement and constraints for DiDIY online courses, from those included (or implicit) in the Project Grant Agreement to those emerged as a result of several activities, about dissemination but also in all Work Packages, carried on in the first year of the Project. The section 3 describes how the course has been prepared, according to those constraints, and how the results will be used in the Project.

1.1 Terms and acronyms

GA	Grant Agreement
WP	Work Package
CMS	(Web) Content Management System
LMS	(Web) Learning Management System
OER	Open Educational Resources



2. Initial requirement and constraints

The task assignment, as described in the GA, consists of:

- developing three introductory online courses on the benefits and risks of DiDIY, respectively aimed to school teachers, NGO members, and SMEs;
- running at least one session of each course, during the Project, in order to test the material and gather feedback.

Depth, content and, to a large extent, the structure itself of these courses, were all defined, albeit implicitly, in the GA, by two of their features and requirements.

The first one is that all the original materials produced by the Project for the courses must be Open Educational Resources (OER). This requirement first comes from the principles stated in the Proposal, that is from the will to use and produce, as much as possible, only Free (“as in Freedom”) and Open resources. At the same time, this is also a very practical requirement, that comes directly from the main goal of WP8, which is to provide maximum dissemination and long term sustainability of this and other products of the Project: in other words, it is essential that all the material of these courses is as reusable and extensible as possible, by any third party interested in doing so. Besides, this must be guaranteed even after the conclusion of the Project, and even if this means not using the best possible solutions, from purely technical, or user-friendliness points of view.

The second feature, or requirement, for these courses is that they must not be a generic, basic introduction to DiDIY topics, e.g., 3D printing. Many other resources, as well as activities carried on in the field by FabLabs and MakerSpaces all over Europe, already take care of this need. The purpose of these courses, instead, is to contribute to maximise, obviously across the whole European Union, the dissemination of DiDIY, in two broad but still very precise and focused senses:

- increase awareness and basic understanding of the general concepts (as defined by the Project) of DiDIY mindsets and activities, and their risks and opportunities in all sectors of society, in the European Union and elsewhere;
- increase awareness, basic understanding and diffusion of the specific findings, policy guidelines and other proposals of the Project itself.

In this context, however, after the beginning of the Project we have found from both internal (research) and from external (dissemination) activities, repeated proofs that DiDIY is much more of a greenfield, and that defining and explaining it is consequently quite harder than initially supposed.

Taken together, all these initial requirements and findings from the first year of the Project lead to the following explicit constraints. The courses:

- must be simple, first introductions to DiDIY (otherwise they would not be dissemination); in this sense, a more appropriate name for the course, or at least an alternative form that is more suitable as a slogan, or for announcements in Social Networks, may be “Pills of DiDIY”;



- at the same time, the courses must not be first introductions to *specific*, current and maybe transient¹ forms of DiDIY, e.g., sensors, but to the *deep* meaning of DiDIY and its *long term* consequences, as researched by the Project. This also applies to the parts of the course about more technical topics: very good beginners’ guides to specific DiDIY practices, be they 3D printing or programming with Arduino, already exist. There is no need to “compete” with them;
- the courses must be accessible also to ordinary citizens who have little knowledge, or no knowledge at all, not only of DiDIY, but of software and hardware in general. The only skills to use these courses should be basic ability to visit a website, or use a smartphone app, and the only technical requirements should be access to Internet and to an Internet browser on any desktop or mobile device, including shared ones in public libraries, or similar venues;
- the courses must be accessible to citizens of all Europe, meaning that they must be:
 - written in easy to understand English, in order to be effectively accessible also to an audience of (mostly) non-native English speakers. In perspective, the courseware could be also translated to other EU languages. However, having (at least) an English version that is as easy as possible to use also for non-native English speakers makes it easier to have participants from different EU countries in the same session of the course, thus maximizing their possibilities to learn about DiDIY risks and opportunities across the whole European Union;
 - accessible also by means of devices with small screens and/or slow Internet connections;
- if all the original course materials must be OER, they must be legally and technically reusable without restrictions. This means that, besides having an open license, they must not be accessible only from inside any specific software or web platform. They must be published anyway (also) as independent files, that people may download and then reuse as they want, in other files, courses or web-based platforms;
- all previous points apply regardless of whether the courses target the groups defined in the GA (teachers, NGO members, SMEs) or other ones.

An important consequence of the first two conditions in the above list is that, even if we originally foresaw “three courses, for school teachers, NGO members, and SMEs”, in practice most of the content of those three courses would have to be basically the same. In other words, more than the need for three different courses, what has emerged from the first year of the Project is the need for *one course with three different spins*, or parallel optional paths. This differentiation shall be applied mostly at the levels (discussed in the next sections) of: learning activities, forum discussions and “further resources” provided with each module.

For the same reasons, the courses will be explicitly presented, both to their participants and to DiDIY stakeholders in general, also to make a general point. Namely, the courses will be presented also as input and motivation to request that the same topics are included in national courses and

¹ In this specific context, the word “transient” only means “transient in popularity”. For example, 3D printing currently is the most popular DiDIY technology, and as such it already enjoys consistent, and relatively big coverage by mainstream media and social network: while there is little doubt that it will remain an essential one, it is not sure that it will remain the most relevant in the medium/long term.



other dissemination initiatives organized by national associations of NGOs, SMEs, teachers, and other stakeholders.

One of the many cases across EU of where this “second-stage” dissemination should take place, hopefully thanks to these courses and with the assistance of Project members, is the “Digital Animators” program recently launched for Public Schools in Italy².

² Two good introductions (in Italian) to this program are the FAQ by the Italian Ministry of Instruction and Research (www.istruzione.it/allegati/2015/MIUR%20AODGEFID%20REGISTRO_UFFICIALE%28U%2923331_07122015_FAQ_ANIMATORI_DIGITALI.pdf, December 2015) and the Press Release of January 2016 by the same source (<http://hubmiur.pubblica.istruzione.it/web/ministero/cs050116>)



3. Course organization

3.1 Main features

Taken together, the conditions presented in the previous section mean that:

- the course, as well as all its original materials, must have the format and structure described in the next section, which is also basically the same of the Introduction Module of “Learning Creative Learning” by MIT (<http://discuss-learn.media.mit.edu/t/explore-creative-learning/1094>);
- the original materials, be they text or video, must be very short and simple. Besides, the content, if not the “packaging” (structure, outline, formatting, extra pictures, etc) should greatly overlap with other recent deliverables of the Project. It is for this reason that several modules basically repackage and slightly expand the contents of the DiDIY Policy fact sheets (deliverable D8.5);
- the courses cannot consist only of material prepared in advance, but must also provide “support” activities, that is more or less direct interaction with other participants and with a Tutor, as described in the Forum section.

In practice, both in this document and in the Project in general, the term “course” means two related but different things, depending on the context:

- a more or less static set of *Course materials*, structured in modules as described below. These materials will be updated, if necessary, over the whole duration of the Project. However, they must be such that everybody can (re)use them in any moment by him or herself, without interaction with anybody, even after the conclusion of the Project;
- an *interactive session* that is organized from time to time, during the duration of the Project. Each session lasts two or three weeks, and happens in the forum, under supervision of a tutor, as explained below.

3.2 Course structure

The first edition of the course(s), whose first session will be launched in April 2016, is composed of the semi-independent modules described later in this document. The only prerequisites to follow a course are: access to the Internet, basic capability to use a computer and website(s) (see the Platform section for details) and intermediate knowledge of the English language. Each of the modules has the same general structure visible in the already mentioned MIT course, which consists of:

- an outline of the module itself, and of its learning objectives;
- a short and as simple as possible explanation of the topic of the module, whose content is as close as possible, when applicable, to the content of the official DiDIY fact sheet on the same topic;
- (for most modules) a short (1/2) minute presentation or video that summarizes the same concepts;



- a short list of selected "Further Resources" materials, i.e., links to already existing videos, texts, slideshows available online;
- some Learning Activities. Some of these activities are fixed: others, when consistent with the topic of the module, will be differentiated for the selected target groups (NGOs, SMEs, teachers), during each session of the course;
- link to a forum where participants can interact, non in real time, with each other and with a tutor. Reasons and usage of the forum, as well as the role of tutor(s) are explained in a separate section;
- link to a questionnaire, whose content and purpose are explained in a separate section;
- no final "grades" will be issued, but a symbolic Certificate of Participation will be issued at the end of a Course session, to the participants who will request it.

3.3 Online questionnaire

The online questionnaire has two purposes:

- to allow each course participant to make in every moment a self-assessment of how much he or she should still need to devote more time to understand certain topics;
- to give the Project, together with discussions in the forum in each session, concrete feedback (which is one reason for doing the course in the first place!) on which parts of the course were more effective and/or which parts of DiDIY need more dissemination effort.

3.4 Course sessions, and role of forum and of its tutor(s)

In general, as far as online educational resources are concerned, many people are happy to just use them privately, that is on their own terms, without feeling the need for any interaction. Many others, however, do want such interaction, and this is even more likely to happen with a course on a topic like DiDIY. Consequently, for many people a significant value of this course, and an important reason to follow it, will be the possibility to interact both with a tutor, and with other people interested in the same matters, to exchange experiences, doubts and comments. Another reason for offering such interaction is the need to collect, as previously mentioned, the feedback that must be gathered from this whole activity.

For this purpose, until its completion in June 2017 the Project will offer several sessions, in which the course materials will be used and discussed together in groups of participants, in a dedicated forum and under supervision of a tutor. The first session will take place in late April 2016, and at least two more will be run before the end of the Project. At the end of each session it will be possible to request the Certificate mentioned above.

In each session, the role of the tutor will be to stimulate and follow up discussions among participants on the topic of each course module, and of the corresponding learning activities, whose results will also be presented and stored in the same forum. More in detail, the task of the tutor shall consist of:

- inviting participants to very quickly introduce themselves;
- encouraging them to ask questions, answer them and stimulate others participants to provide their own answers, and compare them;



- presenting concrete questions and topics for discussion, taking into account the specific mix of participants to a session, that is their actual interests, needs and background (hence the need to invite participants to introduce themselves);
- pointing participants to relevant news coming during the session (e.g., links to relevant articles and blog posts just appeared on www.didiy.eu or other websites, DiDIY-related events, etc);
- (optional, on demand and depending on tutor availability) meeting online the participants to each session, in real time voice conferences, to further explain and discuss specific points of the course. Such a platform may be any of Skype, Google Handouts or subrosa.io, depending on the preferences of the participants.

The main/default tutor for the three sessions mentioned in the previous paragraph will be the WP8 Leader. If necessary, depending on the number of participants to each session and on the issues and requests emerging in the corresponding discussions, the tutor may:

- nominate one or more moderators/assistant tutors among the participants to the same session;
- request, to other members of the DiDIY Project who will have given their availability for such a task, to step in and lead certain specific discussions, or requests of further information from session participants, that pertain to their specific competences, and roles in the Project.

3.5 Course Platform

Due to the a-priori constraints, the course only needs a web space where to publish all the static materials, plus a forum and an online questionnaire, without grades or similar features. For these reasons, and the others described below, the effort to set up from scratch, and maintain, a whole course on an online Learning Management System, like Moodle, was not considered justified in this case. The course, instead, and especially the forum and questionnaire for the first sessions, have been set up entirely on the Project website itself, www.didiy.eu. The first reason for such a choice is to minimize the implementation effort. The second, and most important one, is to maximize the participants exposure to what the Project is doing (by making them visit and use web pages that already, automatically show what else is happening in the Project). In detail, the course and its first session have been set up as follows:

- (static materials) a set of web pages, containing the text and resources for each module: the home page for the first session of the course is <http://www.didiy.eu/courses/didiy-introduction-course-spring-2016>. Following sessions of the course will have the same structure, accessible at a different URL. Figure 1 shows the web version of one of these modules, without the navigation blocks and the embedded video, which will be visible only when the first session will be launched;
- a set of associated videos on the DiDIY Vimeo channel, <https://vimeo.com/didiy>: these videos can be viewed independently, but they will be embedded in the web pages of the corresponding modules;
- a Drupal forum: the forum for the first session of the course is at www.didiy.eu/forums/didiy-introduction-course-spring-2016;



- a questionnaire, whose URL is www.didiy.eu/content/questionnaire-didiy-introduction-course. This questionnaire has been implemented with the Drupal Quiz module, which among other things can display scores and results during or after the quiz, and lets Administrators provide automatic or manual feedback. Figures 2 and 3 show how the Quiz module renders different types of questions.

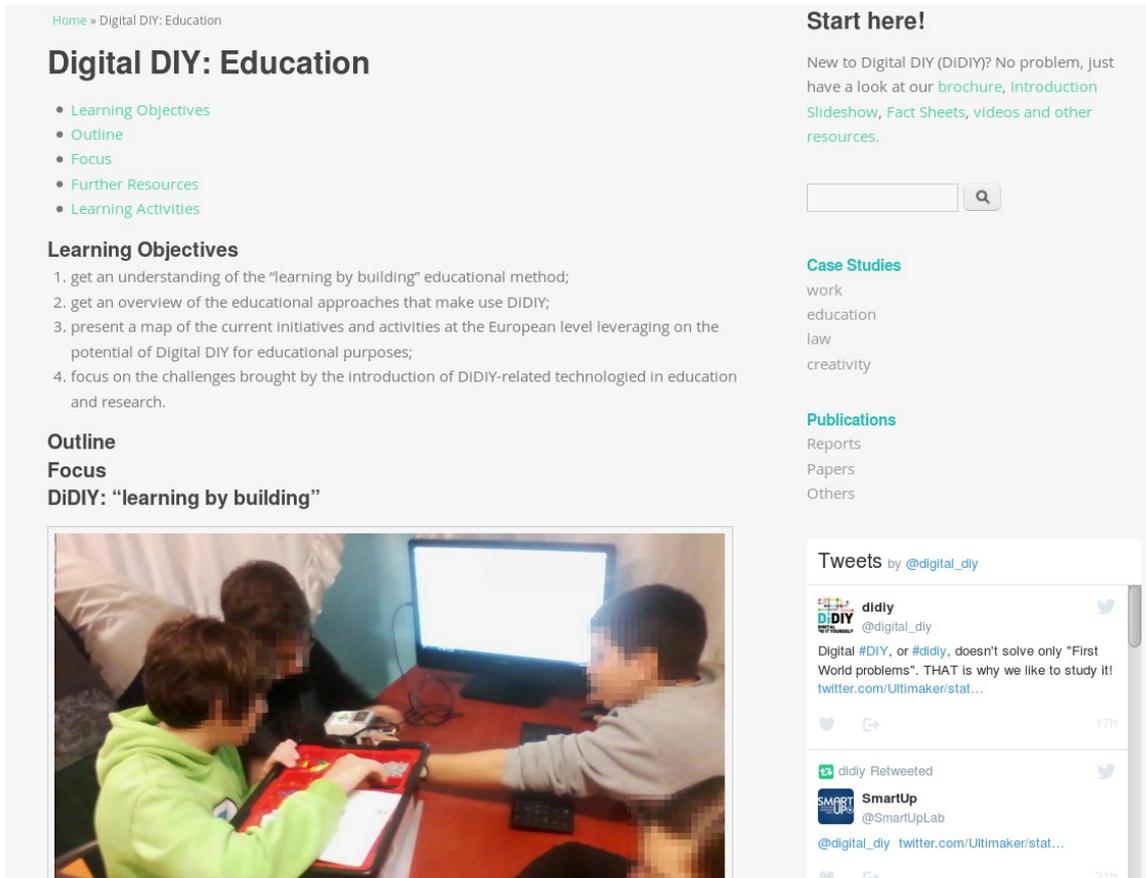


Figure 1 – A sample of how the course modules appear in the DiDIY website.



Questionnaire for "DiDIY Introduction" course

[View Results](#) [Edit](#) [Take](#) [Manage questions](#) [Track](#)

Question 1 of 2
How DiDIY is reshaping business roles?

Choose one

<input type="radio"/>	Professional can now do specialistic activities thanks to digital technologies
<input checked="" type="radio"/>	Professionals can continue outsourcing specialistic activities to specialists
<input type="radio"/>	I do not know

▶ CAPTCHA: no challenge enabled

[Next](#) [Leave blank](#)

Figure 2 – Rendering of a multiple choice question in the Course Questionnaire.

Questionnaire for "DiDIY Introduction" course

[View Results](#) [Edit](#) [Take](#) [Manage questions](#) [Track](#)

Question 2 of 2
What are some of the personal rewards that could motivate individuals to become makers?

Answer

Enter your answer here. If you need more space, click on the grey bar at the bottom of this area and drag it down.

Figure 3 – Rendering of an open answer question in the Course Questionnaire.



PDF versions of the content of each module will be downloadable from the corresponding Web page. Besides, all modules and a PDF version of the Questionnaire will be available for download as one file.

For the first session of the course, this file with the full courseware is at the URL <http://www.didiy.eu/sites/didiy.eu/files/didiy-public/public/didiy-courseware-spring-2015.tar.bz2>.

The license of these materials is the same of all other content on the DiDIY website, that is Creative Commons Attribution Share-Alike 4.0 (<http://creativecommons.org/licenses/by-sa/4.0>).

Over time, the content of the several modules and of the Questionnaire may be updated to allow, for example, the insertion of more appropriate Resources not available yet when the modules were initially prepared.

With this architecture, the course online platform is entirely contained in the www.didiy.eu website, which is an advantage for the reasons already explained, plus another, very important one, as far as dissemination and long term sustainability are concerned: everything put into the DiDIY website will surely remain publicly available, without any further effort required, even after the end of the Project, on a static mirror of the website that would be left online by the Consortium, on the website(s) of any of its partners.

As proposed, the course sessions have two “entry barriers” (besides the unavoidable requirements of having a computer or smartphone, and Internet access). The first consists of working as much as possible in group, possibly inviting friends or coworkers to the same session, by actively participating to the forum discussions. This, however, is more a feature than a bug, and will be presented as such, in the official announcement of the course, because:

- collaboration is a crucial point of DiDIY;
- it gives participants a chance to work together with other people from other countries, increasing also communication and collaboration skills;
- when introducing herself, each participant can freely specify what she expects or needs from the course, and consequently find useful contacts, or other assistance and advice, directly from the other participants.

Theoretically, another “entry barrier” may be the need to create an account on the DiDIY website, instead of just using existing ones, e.g., on Facebook or Google, or just email. However, the course structure is flexible enough that it can be very easily modified, should feedback from participants require it. For example, should the forum as provided by the Drupal CMS be considered not friendly enough, a functionally equivalent service may be easily set up, in the same or future sessions, as a Google group. Should it really be necessary to maximise participation, the same discussion group may even be set up on Facebook, even if this choice would make it much harder and time consuming than other solutions to link to past content, or even worst to search for it. Similarly, the questionnaire may be easily moved to Google Docs, LimeSurvey, Webform (<https://webform.com/content/add/webform>) or similar platforms after the first session, if needed.

3.6 Module subjects

The first version of the Course consists of the following nine modules:

1. Introduction (basic definition of DiDIY, and of the course content and goal)
2. DiDIY fundamental technologies and tools



3. DiDIY “derived” technologies and tools
4. DiDIY in Education
5. DiDIY and Creativity
6. How DiDIY reshapes business roles (and work in general)
7. DiDIY Legal Issues: rights and responsibilities
8. DiDIY communities (this module may be moved to become the very last one)
9. DiDIY final overview

The order of the modules is not the same of the corresponding DiDIY WPs, nor is the same in which the WPs started their activities. For example, the “DiDIY Final Overview” corresponds in practice to the main findings and points from WP2, as contained in the DiDIY Knowledge Framework. While that Framework is fundamental, and its preparation was one of the first activities of the Project, its content may also be one of the hardest to understand for outsiders. Therefore, it is put at the end, after the participants have already acquired some familiarity with DiDIY by looking at it in contexts that are relatively much narrower and easier to define such as Education or Creativity.

The main crucial points from DiDIY Transversal Tasks, that is Ethics and Design (e.g., quoting from the fact sheets, issues like “DiDIY forces society to redefine what is wrong and right”) are mentioned wherever appropriate, in several modules, especially the one about Legal Issues. Design issues from the other Transversal Task of the Project have been mentioned, instead, in the module about Creativity.

As mentioned in the first section, the easiest and most effective way to customize the course for each target group (NGOs, etc) that still respects the basic conditions is to provide custom sets of “Further Resources” and “Learning Activities”. These extra Resources and Activities will be selected and added to the courseware at the beginning of each session. This will allow to customize as much as possible the course offer, according to the actual nationality, skill levels, needs and possibilities of the participants from each group. Of course, all such extra materials will then be added to the static web pages and PDF versions of the corresponding modules, and remain available to everybody both during and after the Project.

3.7 Learning activities

In general, the learning activities have two purposes:

- make the course more interesting, and help participants to learn more about DiDIY, in manner and contexts that are more relevant and useful for each of them;
- help the Project to gather more data from the field, even if they are just pointers to DiDIY activities to investigate in more detail and disseminate.

In order to fulfil (at least) the second objective and to stimulate participants to perform the learning activities, the Project commits to publish the best ones as separate posts on the official blog, obviously with full credit attribution to each author. Other activities which are not worth their own post, but still deserve some recognition and dissemination, may still be published in bulk under the same conditions, as long as they do not require substantial editing effort. This may happen, for example, by publishing one post at the end of each session, which lists all the activities of that kind during the same session, and lets readers download all of them as one zipped file.



3.8 Privacy issues

Feedback from course participants, from the reports from the learning activities to excerpts of forum discussions that may be of general interest for the project research and dissemination, should be publicly quotable and reusable, both for the project benefit and to stimulate such feedback from participants.

This is not a problem in the current makers/fablab culture, which is already based on documenting and publishing one's work and experiences. By and large, in such a culture even the fact that, when sharing some experience, privacy should be dealt with in a reasonable way, that is avoiding personal details when not necessary, but giving credit wherever credit is due, is already understood and acknowledged.

At the same time it is important to take into account the fact that this course specifically targets people who do not know that culture yet, and may not even agree with it. This may be an issue during course sessions, when participants are invited to perform learning activities, which may also involve other people, and then report online about the same activities, and accept that such reports are shared and reused. Therefore, the first, welcome message in the forum of each course session will include an explicit mention of these issues, and an explanation of how to avoid them while reporting one's activities.