

PharmaTrain E-Learning Products Development Guide

1. The PharmaTrain e-learning library

1.1. Structure of the library

A total of ten e-learning modules will be generated (e1-e10). Eight modules are linked to the PharmaTrain base courses in pharmaceutical medicine/drug development sciences. Modules e1 to e6 complement the six modules of the base course curriculum. Modules e7 and e8 provide an overview of the current treatments and perspectives of drug development for two pathologies considered as IMI priorities. Module e9 is an online course for training clinical investigators, which is becoming an important objective of PharmaTrain. Module e10 will be a pedagogical guide for trainers and tutors in e-teaching in pharmaceutical medicine/drug development sciences.

Each one of e1 to e6 modules will introduce a key topic of the PharmaTrain syllabus and form an integral part of the training courses leading to a diploma or serving collectively to achieve the integrated master programme. Students registering for a base course (diploma level) or the integrated master programme will be required to complete the relevant e-learning module(s) as part of the base course modules.

Table 1. Structure of the PharmaTrain e library

	Title	Coordinators	Producer	Status (03/2012)
e1	Introduction to drug development	J-M Boeynaems M Hardman J Whitty	Hibernia	Done
e2	Translational medicine-Dose finding	A Mollet J Whitty	Hibernia, ECPM & Novartis	Started
e3	Full development of a monoclonal antibody	M Harrop	Amgen	Started

	Title	Coordinators	Producer	Status (03/2012)
e4	Drug safety	T Güntert	ECPM	Started
e5	Registration of medicinal products in Europe	?	?	To be started
e6	Health economics	TD Szucs	ECPM	Started
e7	Parkinson's disease	J-M Boeynaems A Stockis	Hibernia	Done
e8	Asthma	J-M Boeynaems A Stockis J Whitty	Hibernia	Done
e9	eCLIC	J-M Boeynaems J-P Kraehenbühl	HSeT	Done
e10	Train the trainers	J Whitty	Hibernia	To be started

1.2. Link to the base course modules

Modules e1 to e6 will be used as an introduction to and preparation for the six base course modules. Some modules are directly linked to a single module, others are cross-modular and linked to several modules. The following table provides a guide to how the e-modules complement the base course modules.

Table 2. Relationship between e modules and PharmaTrain curriculum

	Title	Link to base course modules	Comment
e1	Introduction to drug development	1	
e2	Translational medicine-Dose finding	2 & 3	
e3	Full development of a monoclonal antibody	All (potentially)	
e4	Drug safety	2, 4 & 5	2 : pre-clinical toxicology 4 : safety monitoring of clinical trials 5 : pharmacovigilance
e5	Registration of medicinal products in Europe	5	
e6	Health economics	6	

1.3. Extension of the library

Additional e-modules might be created in the framework of the Master in Medicines Development programme or CPD. Their creation will follow the recommendations and development process defined in sections 2 and 3 below.

2. Recommendations for producing e-modules

2.1. Suggested module structure

- Lesson overview : a short overview to define the objectives and learning outcomes.
- Online lesson, covering the module topic and divided into individual selectable chapters, typically with a few questions at the end of each section.
- Recommended readings (background material for a deeper understanding of the topic) : documents, links to documents or web sites, videos, podcasts or other material with a short description of the content.

- Acknowledgments, with biographies of the members of the scientific committee who contributed or reviewed the content.
- Inclusion of assessments, assignments, and interactive tools is recommended, but not mandatory, since these activities can be performed during the face-to-face sessions :
 - Assessments serve to confirm learning progress to the student and the teacher / tutor. They are typically self-assessments in the form of self marking multiple choice questions.
 - Assignments may include completion of learning packages, case studies, or similar. They may be tutored or non-tutored, and are to be completed individually or in pre-defined groups.

2.2.Design options

Authors are free to choose the teaching methods and learning tools they feel are most suitable to achieve the learning outcomes of the respective module. It is recommended that module authors use open source platforms and existing data exchange standard formats wherever possible and appropriate.

Some specific recommendations:

- PharmaTrain e-modules should be appropriately branded to ensure that they can be easily identified as such.
- eModules are best offered on an electronic learning platform. Such tools offer many functionalities which facilitate delivery, interaction between course provider and students, as well as assessments on a secure platform.
- eModules should support different learning styles (e.g. visual learning, audio learning, reading etc).The standard format of Hibernia is an example how this can be done: slides are presented with written scripts and voice recordings. This allows the participant to choose between different modalities: looking at the screen and/or listening to the voice. Other modules like e8 and e9 are based on screens of text with slides to illustrate/ summarize it.
- Powerpoint presentations as they are used to support oral presentations are in most circumstances not appropriate for self-directed learning. When powerpoint slides are used they need to be accompanied by audio/written explanations, or need to be produced specifically for e-learning purposes.
- Animations, videos and interactive materials can be very effective learning tools when used selectively and with the right “dose”.
- eModules should provide for a tutored forum where students can post questions either directly to the course moderator or to the participants as a whole.

- While more and more students are familiar with Social Media, course providers may consider including such techniques in their modules.
- The delivery platform should be accessible from all widely used types of browsers and devices. In particular the use of mobile devices should be facilitated.
- Learning platforms used for PharmaTrain e-modules should be secure and only accessible to identified users. Frequent safety updates are essential to ensure that the integrity of the materials is secured. Optimally, access is provided through the course provider rather than by self-enrolment.

Table 3. Examples of learning tools and methods

Collaborative project tools	Student-led learning	Instructor-led learning (asynchronous)	Instructor-led learning (synchronous)
Forum	Case study	Flash simulations / graphics	Tutorials
Instant messaging, Chat rooms Skype Team View	Needs analysis	Forum	Webinars
Social Networking Tools	Presentations Essays Learning packages Simulations Games	Lectures	Chat rooms
Wikis	Quizzes Simulations Games	Podcast	Moderated Forum
Webinar	Reading	Surveys	
Collaborative platforms Virtual classroom	Web quests	Text	
	Videos	Video/audio	
		Blog	

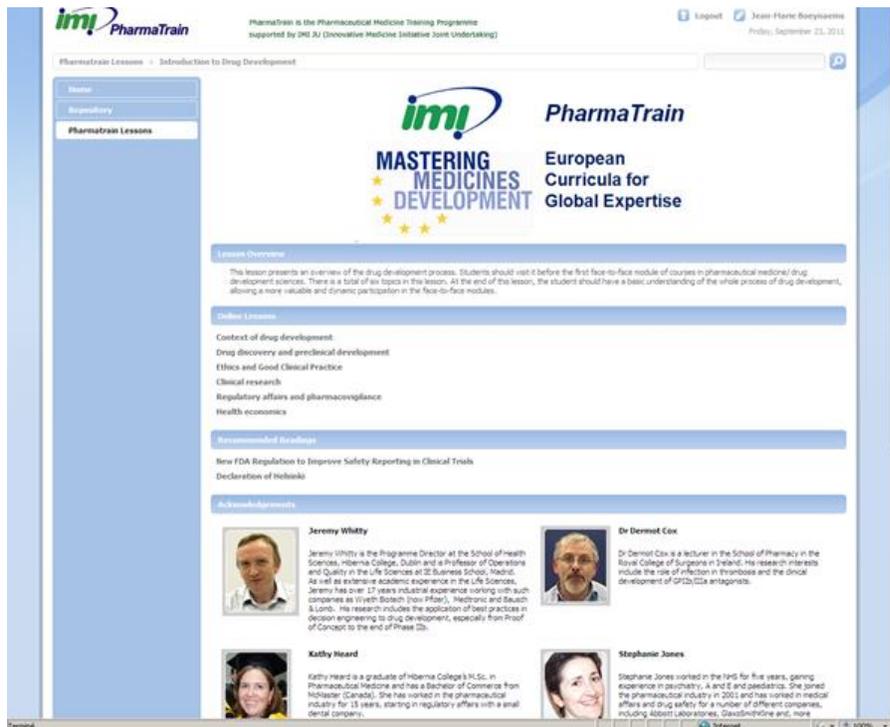
2.3. Volume of the lessons

A standard lesson should represent at least 5 hours of work, and should allow for breaks to take place in between sections for rest and reflections on previous section. For example module e1 is composed of 225 slides, divided into 6 chapters. Additional time should be devoted to the recommended readings, self study, assignments and completion of assessments

2.4. Design of the web appearance

The design of the websites used to provide access to PharmaTrain e-modules should follow a common color scheme and be appropriately branded to facilitate recognition as a PharmaTrain e-module.

Since modules e1 to e8 belong to a series, and as some modules are already completed, the format designed by Hibernia for e1, e7 and e8 should become the minimal PharmaTrain design standard



3. Development of e-modules

3.1. Actors

The development of each module involves 4 actors :

- Coordinator(s) who design the overall structure of the module, identify the authors and reviewers and coordinate the work;
- Authors who are experts in the field and create the content;
- Reviewers who are experts in the field and review the content created by the authors;
- Production manager, who coordinates the online production and interacts with the coordinator(s)/authors.

3.2. Role of PharmaTrain executive board

The Executive Board of PharmaTrain designates the module coordinator (s) and the e-learning producer. For modules e3, e4 & e5, the choice of the producer will be based on a tender process.

3.3. Role of the coordinator(s)

The module coordinator(s) designs the overall structure of the module, identifies the authors and reviewers and coordinates their work. The coordinator(s) may decide to incorporate in the module existing material, f.i. developed for internal use by pharmaceutical partners within PharmaTrain and provided as an in kind contribution.

The coordinator is accountable for the module, and keeps PharmaTrain's WP4 leader and the Executive Board informed on progress made, upcoming questions, major decisions to be taken and the adherence to the agreed budget.

3.4. Module template

The module coordinator completes a template that defines the main features of each module and updates it as needed (see Annex 1).

3.5. Follow-up of the project

The coordinator(s) informs WP4 leader about the evolution of the project on a regular basis, in particular before each meeting of the executive board.

3.6. Validation and release of a module

When the module has been validated by the coordinator(s), it should undergo expert review and a user testing by a small number of test users to ensure the functionality under different conditions. User testing should be conducted using a test script which ensures that all functional aspects of the module are reviewed. Then the module becomes accessible on the PharmaTrain web site (<http://www.pharmatrain.eu>) in the section e-Library. Access requires a free of charge registration. The same password gives access to all e modules.

Annex 1 Module template

Title	
Learning outcomes	
Content (and reference to syllabus/curriculum)	
Coordinator(s)	
Authors	
Reviewers	
e-Learning producer	
Production manager	
Volume of the module	
Use of existing content (if applicable)	
Recommended readings	
E learning tools	
Assessment	
Link to access (provisional)	
Date of availability	
Budget needs	