mits mechatronica

modular interactive training system
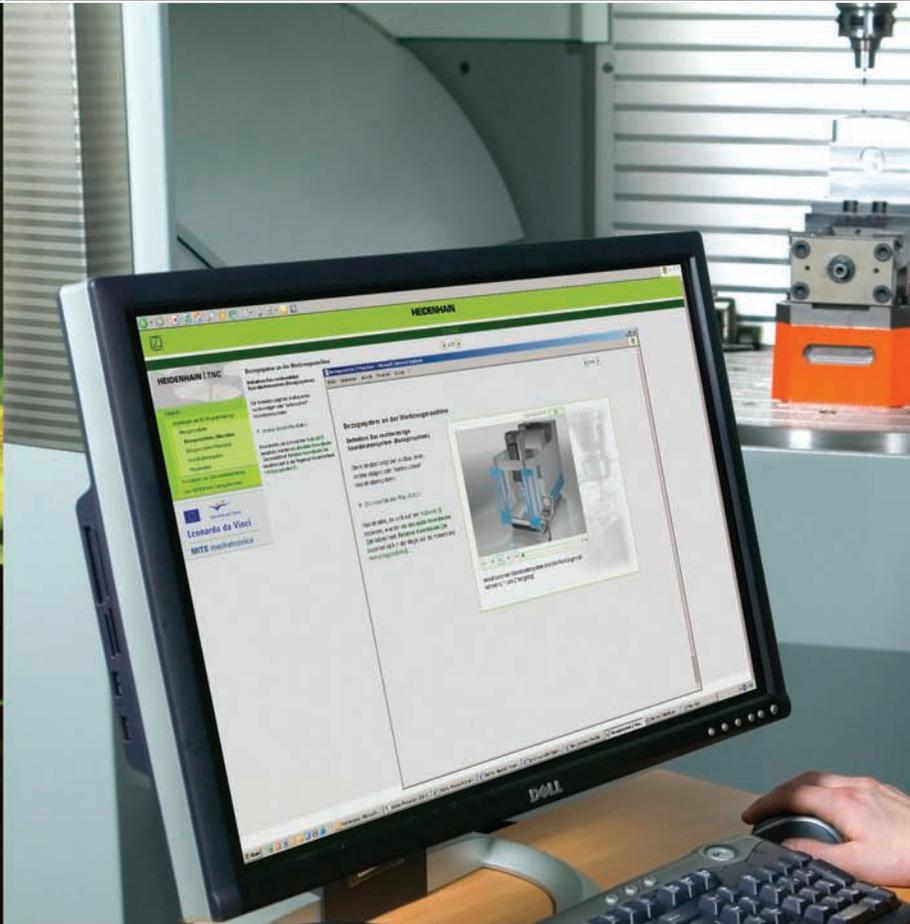
e-Learning for professionals and vocational learners

A practical guide for instructors

Can I use e-Learning in practical training?

The strength of practical training lies in its realism and in its hands-on learning strategy. This guide describes a method that will realise both characterisitics in e-Learning

A visual and interactive approach allows us to come close to what a learner would experience through a practical exercise.

This way, e-Learning can be used either to complement practical training when the necessary materials are unavailable, or in preparation for the use of scarce resources.

Can I integrate e-Learning with my existing course?

The e-Learning content, set up according to this guide, consists of units that each realise one learning objective. An instructor can combine several of these units to build a course. Furthermore, separate units can be added to an existing practical course as every unit forms an entity on its own. This modular structure allows us to build a course which caters for the needs of our learners. At the same time, it lets us combine e-Learning with practical training.

This guide describes a Modular and Interactive Training System which teaches professionals or vocational learners subjects of Mechatronica in a practically-oriented way, using web-based learning contents.

How do I make practically-oriented e-Learning contents?

The content must be presented interactively
It should approach reality as closely as possible by using images, videos and animations.
Interactive scenarios create a hands-on learning experience, which also allows learners to make mistakes and learn from them.

Work in three steps: an introduction with a description of the learning objective for the learner, the learning contents and a final implementing test.
Specific terms in the content must be explained in a pop-up description.
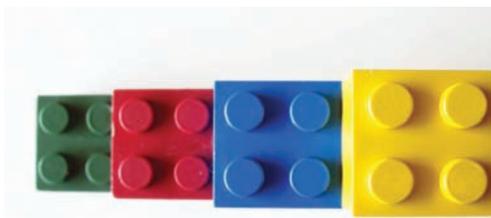
The content is divided into web-based modular units:
Per unit, only one learning objective for a chosen detailed level can be dealt with.

Every unit has to meet the SCORM-standard to be usable in different learning environments:

> The learning objective, the target group, the neces sary foreknowledge and the detailed level have to be described, so the units can be looked up.
> The unit must pass on the learner's experience to the learning environment.

> Realism

> Interactivity

> Three steps

A full description of this guide can be found on the website mentioned at the end of this brochure.

Text and image

Keeping our target public in mind, we will be using short texts and clear images. The animations must be as close to reality as possible.

Video en sound

Videoclips and sound show the actual reality and create a realistic experience.

Controllable animations

Animations should represent reality as faithfully as possible, but their objective is to render aspects that cannot be shown in a videoclip. They should therefore be equipped with an extensive range of control buttons.

Hands-on learning

Creating diagrams interactively. In the Java applet which is shown, the learner can fill out the parameters for machining in the special boxes. This way, the learner creates his own diagrams and immediately sees the consequences of his actions.

Simulations

Using this interactive flash simulation, we can allow the learner to influence the animation. Moreover, flash is an excellent programme for developing "comprehensive tests".

Comprehensive test

Interactive questions based on multiple choice, single choice, drag & drop, hot objects and match objects, give learners the opportunity to acquire the learning contents by trial-and-error. Providing adequate feedback, the developer can lead his learners to the correct solution.

INTERACTIVITY

Learning objective in introduction

At the start of every unit the learner is told what he / she can learn in it. Each unit contains a single learning objective, so it can be used in different lessons.

Pop-ups

The learning content can be documented in a better way by adding quite some extra information to the basic learning content, using mouse-over, mouse-down or on-release effects. This way, the learners will keep focusing on the objective of that unit.

Finally: a test

A unit ends with an interactive test, which also provides the necessary feedback.
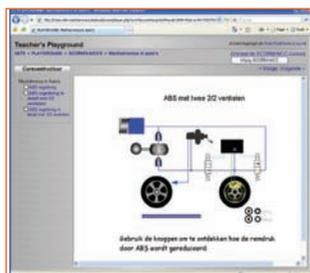
From e-Learning units to an e-Learning course

Putting together a course is done in an e-Library or Repository where you can find e-Learning units covering a wide range of subjects. The resulting course can then be used in the school's e-Learning environment.
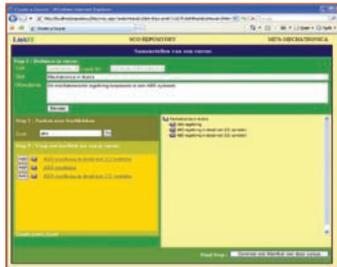
Building a course in 4 steps:

1. The instructor makes a new caption for the course, in which the title and the learning objectives are described.

2. The necessary e-Learning units can be found in the e-Learning library and added to the course structure.

3. If the course is finished, a standardized description of this structure is taken from the e-Learning library. Through hyperlinks this structure refers to the original units which are kept on the developer's webserver.

4. This structure is loaded into the school's e-Learning environment. Because of the SCORM-compatibility, this platform can automatically generate the course.

For further information, go to http://www.linkIT.be/mits