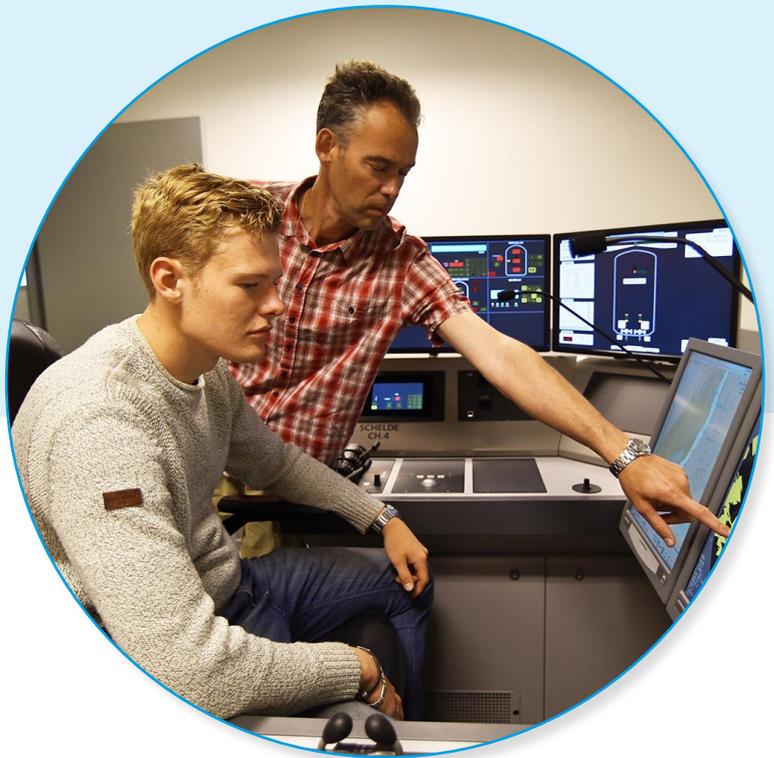


REPORT

Description of blended learning environment for Inland Waterway Transport Education & Training (D 3.2)



PROJECT: COMPETING
DELIVERABLE: D 3.2
AUTHOR: FHOO
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MAIN EDITOR(S)	Anton Edtmeier, Florian Hofbauer, FHO0
CONTRIBUTERS	Omrine Wilson, Minne van Eekeren, STC Group and Helen van Willenswaard, Maritieme Academie Harlingen
REVIEWER(S)	Anton Edtmeier, Florian Hofbauer, Minne van Eekeren, Helen van Willenswaard
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Summary competing report

Deliverable: D 3.2, version: 1.0, date: 23 July 2020

The aim of this task was to bring together existing cutting-edge technological solutions, customize them to the spirit of the proposed approach and to create a sustainable service, made available via a website related to the COMPETING project, providing access to high quality resources offered by the members of the consortium. The system is based on a modular architecture and the project has developed the necessary interfaces. It will act as the main “hub” of resources developed in the project and it will serve as distributor of information about the project’s activities and materials.

FHOO was in charge of the development of this online system. The question was what kind of role the learning management system (LMS) will have in inland navigation education, both during and after the COMPETING project. Within the project, the LMS will particularly focus on the educators instead of the students.

The partners see blended learning as a combination of online learning in combination with face to face learning.

This can be achieved by applying hybrid methods of teaching and learning. In other words a mix of different learning methods (passive and active) are very useful to be applied.

With the mixture of passive and active learning methods is meant for example: digitalized or not. In such an environment the students can learn and study at their own speed and the teacher becomes more like a coach and the two way-communication becomes very important.

With this system the student is triggered to learn by doing and is actively involved and supported with digital media. A combination of practical and theoretical knowledge are still applied in order to provide the students a solid basis.



Introduction

Aim of WP3/Act. 3.2 of the COMPETING project is to create a blended learning environment for training in the inland waterway navigation according the EU Directive 2017/2397 and CESNI standards for operational and management level. This document provides the didactical and technical concept as basis for the course design, the production of learning material and digital tools to support the learning processes in the new courses/curriculum.



Educational vision on LMS

The COMPETING project, a collaboration between STC Group and various other inland shipping schools in Europe, aims to translate the new European directives for inland shipping to education. These directives are called the CESNI standards, which are comparable to the STCW for maritime shipping. Part of the project is the learning management system (LMS). The Austrian partner is in charge of the development of this online system. The question is what kind of role LMS will have in inland navigation education, both during and after the COMPETING project.

Within the project, LMS will particularly focus on the educators instead of the students. Therefore, this paper will focus primarily on the support of LMS for educators.

What is an LMS?

A learning management system is a self-contained program where (instruction)materials can be placed on. The system makes it possible to organize these materials (Gautreau, 2011). Due to the increasing use of different tools in education, such a system is used to manage teaching and learning activities in an online learning environment (Dias & Diniz, 2014). The LMS software can contain components such as a discussion environment, an environment for announcements, assignments and multimedia.

The LMS environment has shifted through the years. In the early years, LMS could only be used for monitoring and administration (Dias & Diniz, 2014). Now, it is possible to offer online modules to students and staff via LMS (Aydin & Tirkes, 2010). This makes distance learning possible. All activities of all users are recorded (Dias & Diniz, 2014; Itmazi & Megías, 2005). It is also possible to request for reports.

There are different sorts of LMS. A typical learning management system includes tools that facilitate interaction, collaboration, training, communication and sharing information (Dias & Diniz, 2014). Despite the different functionalities, some learning management systems are only used for information distribution and administration. Programs that function as a LMS are for example aNewSpring, Blackboard and Moodle (Dahlstrom, Brooks, & Bichsel, 2014). Among these programs are several differences, in addition to the possible functionalities. Some LMSs are open source, other LMSs cost a certain amount of money a month or a year. Another difference is that some LMSs contain a mobile phone application. Mobile access to systems like LMS is becoming more important and because of that the next-generation LMS should be mobile friendly to meet users' needs and expectations (Dahlstrom et al., 2014). Lastly some LMSs are functioning more as an human resource tool.

What are the benefits of LMS?

Research shows that the use of an online platform such as LMS can help an educational institution to manage and organize material, thereby shortening planning and preparation time (Coleman & Mtshazi, 2017; Gautreau, 2011). In this way LMS contributes to the process of instruction within education. A major advantage is that various types of multimedia can be shared within LMS, such as videos, text and audio recordings.

Another big advantage is that the software can simplify communication between different educators and educational institutions (Gautreau, 2011). The learning materials within LMS are easy to consult. The different educators and educational institutions can share their materials with each other.

If desired, LMS makes it possible to request information about students (Coleman & Mtshazi, 2017). Educators can see which assignments have already been submitted, the progress of the students, and ask and answer questions.



What role does LMS play in education in combination with COMPETING?

For the COMPETING project, all partners will use their own LMS, which can differ from another partner school. There will be one overall learning management system for the exchange of learning materials between the partner schools. This overall LMS will be addressed as LMS in this article. The schools themselves are responsible for converting the materials from the COMPETING LMS to their own LMS, see Figure 1.

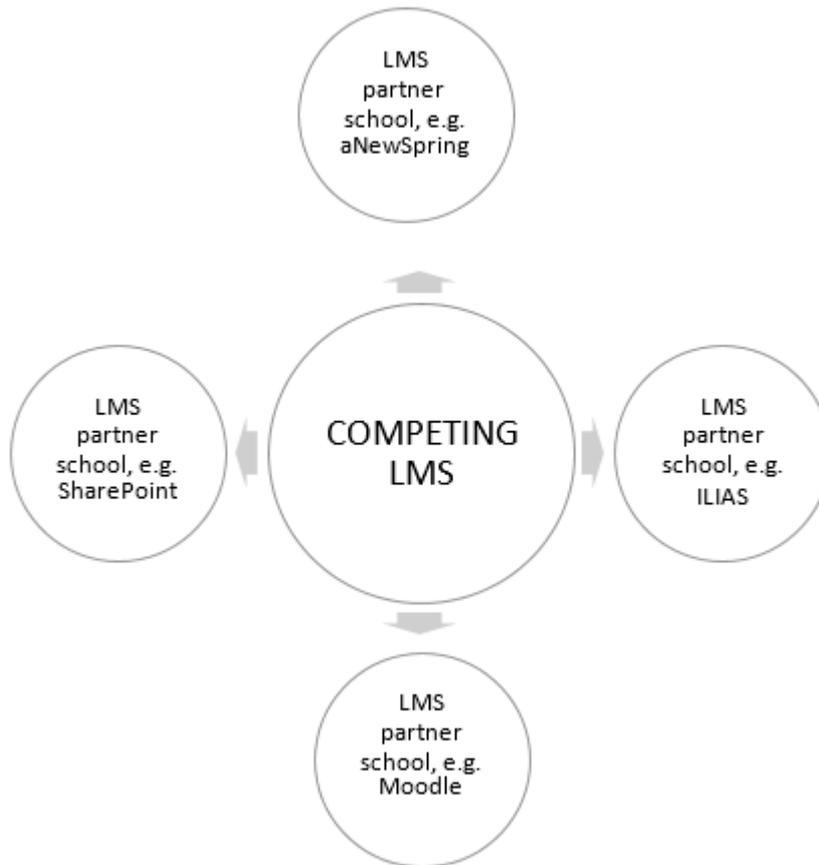


Figure 1. Position of COMPETING LMS compared to partner schools' LMSs.



Based on the previous, LMS can also be seen as a platform that serves as a means to share material between the different European partner schools, both during the project in order to achieve project-based goals, and afterwards during the (further) development of the curriculum. LMS has a key role: The platform makes it possible to learn from and reinforce each other. LMS works as a source of information and as a support tool, see Figure 2 and Figure 3.

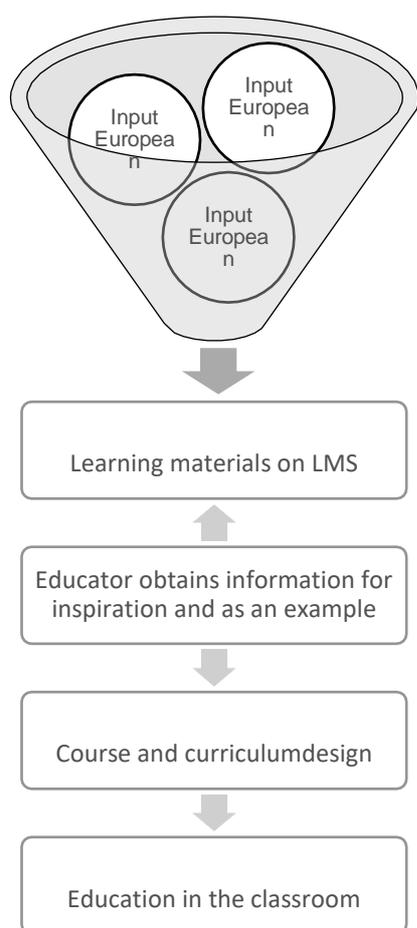


Figure 2. LMS compared to the educational curriculum in combination with COMPETING.

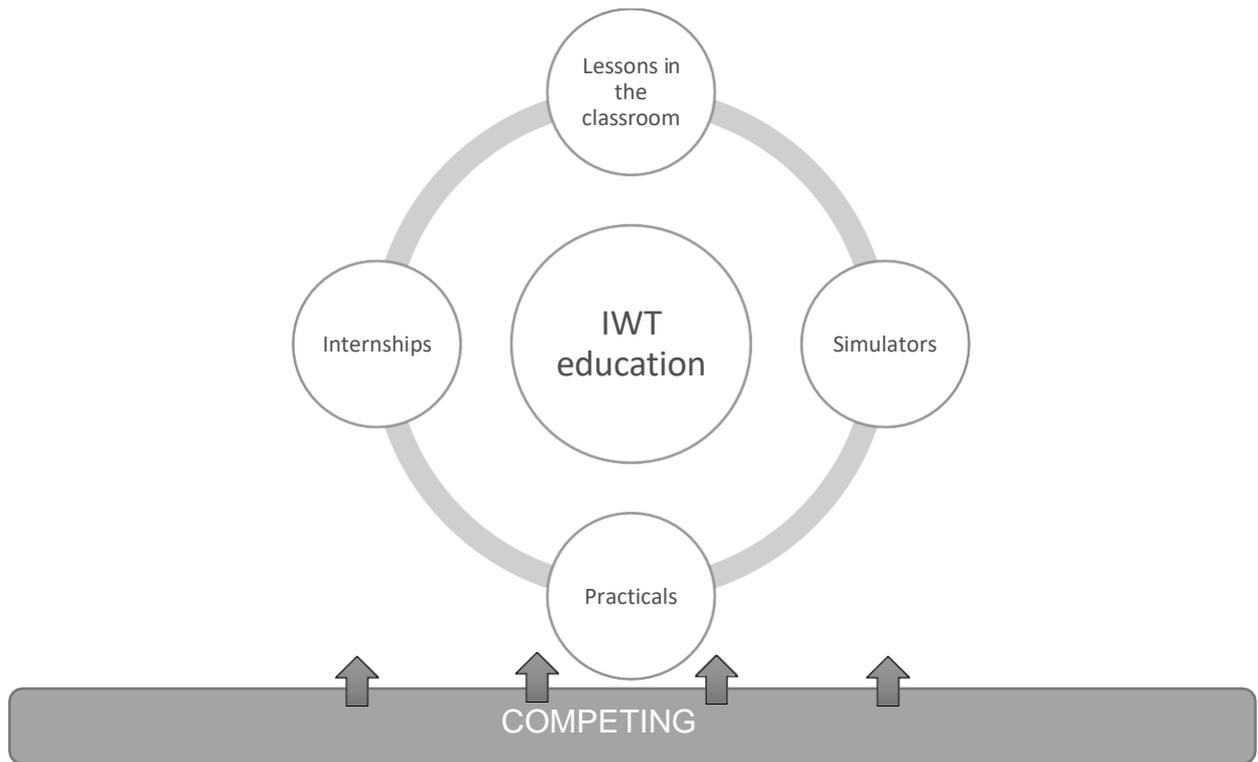


Figure 3. LMS in relation to educational practice.



LMS comparison

LMS Consideration Factors

For our LMS comparison, we came up with the following requirements.

- Experience with the LMS
- Free of cost
- App Available
- Prior knowledge required?
- White label option
- Multiple Devices / Responsive
- Multiple rolls: (admin, students, guest, teacher)
- SCORM compliant
- Follow Student Progress
- LMS TYPE
- TYPE Solution
- Memo trainer
- Need to set up environment?
- Helpdesk?
- In our own management
- Accessible for multiple organisations
- Import/export function material
- Possibility to add different kinds of media (MP4, MP3, GIF etc)
- Possibility to embed external applications (f.e. HP5)
- Quizzes (different kind of question types)
- Possibility to build a library
- Simple navigation for teacher and student
- Different languages available
- Easy to subscribe for users/access the material
- Free access
- learning objects are accessible without registration
- Content Creation is included in LMS
- Source of content is available for export and can be adopted for individual versions (languages,..)
- Keywords and/or Metadata
- Creation of SCORM compatible content with LMS

We made a comparison between 3 open source LMSs. For the complete excel list, I refer you to the attachment at the back.

The 3 LMS's were chosen because at least 1 of the partners had experience with them.



Surveys

We also conducted two surveys:

The first survey was done during the Kick-off meeting on the 31st of January 2019, where the project partners brainstorm together about what is understood with the word 'blended learning', and the main elements/topics to be described on such a platform. The analysis of this survey is done in chapter 2. The result of the groups can be seen in appendix 1.

The second survey was done two months later in March 2019. For this survey the lead partner sent a questionnaire with four questions to the individual partners which are a training institute or a university. This is done to understand how these end users interpret and use these platforms. The results of this survey can be seen in the appendices 2 until 5.

These results will form the basis to determine which kind of strategy will be implemented to realize a learning platform within the COMPETING project.

All the outcomes and the fact that FHOO already had an ILIAS installation running made the choice for ILIAS even better.



ILIAS

Introduction

ILIAS is a powerful Open Source Learning Management System for developing and realising web-based e-learning. The software was developed to reduce the costs of using new media in education and further training and to ensure the maximum level of customer influence in the implementation of the software. ILIAS is published under the General Public Licence and free of charge.

Course Management

ILIAS allows efficient creation of courses and course materials. It offers standardized tools and templates for the learning and working process including integrated navigation and administration.

Groups and Collaboration Groups in ILIAS allow cooperative learning and working on the platform without additional tools. Learning groups, working groups or groups for certain fields of interest could be constructed. Groups can use all ILIAS tools like forums or file sharing. Users can create groups that are open for everyone or have specially defined access restrictions, e.g. access with a password.

Learning Content

ILIAS offers multiple ways to deliver learning content. All types of document files can be uploaded, SCORM 2004, SCORM 1.2 and AICC are supported.

ILIAS includes an internal authoring environment to create XML-based learning modules, that can include images, flash, applets and other web media files. It is possible to create glossaries and reuse term definitions within other learning modules.

Since ILIAS 4.0, ILIAS is also offering an integrated SCORM 2004 content editor with several supported export formats.

Communication

ILIAS supports standard ways of communication as chats, forums and mails. The personal desktop includes an awareness function, that shows users, that are currently online. ILIAS also sends information via RSS to the user and displays external RSS feeds in the system.

Webcasting

Beside RSS support, ILIAS offers the ability to manage podcasts. To create a podcast is as easy as uploading an audio file to the web. The author decides whether items are available through the web, or within the LMS only.

Online Surveys

In ILIAS you can use surveys to easily collect information from a large number of users, for example to evaluate courses or other events. ILIAS surveys are easy to create and administer, even for non-experienced users. With a sufficient basis of survey questions, teachers could create their own evaluations fast and efficient.



Google Maps

A learning management system is a virtual meeting place for your teachers and learners. But in ILIAS users may also share their real locations to meet each other. ILIAS supports Google Maps for user profiles and adds maps of all members to groups and courses.

Personal Desktop

Every user in ILIAS has his or her own Personal Desktop. It collects all resources, that are needed by the learning to fulfill the daily learning tasks. The personal desktop features News, Personal Messages, Learning Resources, Personal Notes, Bookmarks, External Web Feeds and other information. The learner can re-arrange these blocks of information according to his needs.

Test & Assessment

ILIAS offers an integrated environment for the creation and enforcement of tests & assessments. This can be used for the monitoring of learning progress by the users as well as the tutors and examiners. ILIAS Test & Assessment supports multiple choice, single choice, allocation questions, cloze questions (free text, select box), ordering, matching, hot spot and more question types.

Standard Compliance

ILIAS accomplishes the e-learning-standard SCORM 1.2 and first of all open-source-LMS, it achieves the maximum conformance level LMS-RTE3. It also supports LOM metadata standard, AICC and IMS-QTI. ILIAS is the first open source LMS that has been certified to be compliant to SCORM 2004 3rd edition.

Authentication

ILIAS supports a lot of different authentication methods: Standard Login/Password Authentication (Database), LDAP, Shibboleth, CAS, Radius and SOAP based Authentication.
SOAP Interface

Today learning management systems are integrated into a larger environment of institutional administrative systems. To enable information exchange with these systems, ILIAS offers a SOAP interface, that allows to control almost everything in ILIAS with an external application.



Personal Desktop

This is the personal working space for each user in ILIAS. Here users begin their session in ILIAS, and continue using it for a course for instance or enter a virtual working group.

The screenshot shows the ILIAS 5.4 Demo Personal Desktop interface. At the top, there is a navigation bar with 'ILIAS 5.4 Demo', 'PERSONAL DESKTOP', and 'REPOSITORY'. The main content area is titled 'Overview' and contains several widgets: 'System Messages' (1 System Message), 'News - Last Week' (0 News Item(s)), 'Mail' (0 Mail(s)), 'Selected Items' (Course Management, Demo Page for Category Layout, ILIAS for Companies, Sandbox), 'Sessions' (18. Apr 2011, 10:00 - 11:30: First Lecture), 'Calendar' (Jun 2020), 'Bookmarks' (Introduction), and 'My Tags' (1102, 111, 2017/0924, aaa, efgs, Frühling, Herbst, Sommer, Winter).

Main page of the Personal Desktop is the Overview where all Personal Items, News, Mails, Notes, and Bookmarks are displayed. The list of Active users shows which other colleagues, course members or group participants are online at the moment.

From the Personal Desktop a user has access to the Personal Profile with the settings of each user and to the personal Learning Progress too.

Features:

- Subscribed courses and content modules (incl. last visited page)
- New and unread internal mails, e.g. course mails or system messages
- Subscribed own forums and groups
- Administration of the personal profile, for instance the language setting or vCard
- Administration of the personal bookmarks for internal and external links
- 'Who-is-online?'-feature incl. invitation to the chat
- Calendar and time scheduler
- Overview and administration of personal notes (Desktop and all content items of the repository)
- Overview for monitoring of the personal learning progress
- Push-feature for the contents (tutor can place all contents on the Personal Desktop of the users)



Repository

In ILIAS, e-learning content is not only offered in courses as often seen in other LMS. All available resources for learning and working like learning modules, SCORM modules, wikis, discussions forums, files or working groups are stored in the repository. Of course, you find there courses as well. While the Personal Desktop is your private workspace in ILIAS, the repository is your e-learning library where you find everything that could be interesting for your e-learning session.

The repository can be structured in different ways. A lot of institutions are using a structure that represents their own organisation structure, e.g. faculties and institutes, chairs and classes. But you can create the categories of the repository also according thematic structures.

Different modes of presentation (flat view, tree view, filter view) and an internal search engine support user additionally to find the appropriate content easily. For further use all these content objects can be put on the user's personal desktop by subscription until cancelled.

ILIAS 5.4 Demo

ILIAS PERSONAL DESKTOP REPOSITORY

Repository > Features and Scenarios > Content Management and Development

Content Management and Development

ILIAS provides several ways to deliver content. ILIAS native learning modules, SCORM content and glossaries.

Content Management

ILIAS native learning modules

ILIAS learning modules are simple way to create and publish content. Creation can be done either by an internal editor or by an OpenOffice extension called eLAIX.

SCORM Content

ILIAS provides certified SCORM 1.2 and 2004 RTEs. You only need to upload your existing SCORM package and ILIAS will do the rest.

There current RTE is Javascript-based only and does not need any java on the client side.

SCORM Editor

The SCORM editor provides an intergrated collaborative SCORM authoring environment.

You can export your package to SCORM 1.2 or SCORM 2004. It is also possible to create CD ISO images quickly.

Glossaries

CATEGORIES

- ILIAS Learning Modules
Create online modules with an integrated editor in ILIAS or use Open Office for offline production
- SCORM Content
SCORM 1.2 and SCORM 2004 RTE :: integrated authoring environment
- Glossaries
Define and explain terms and connect them to learning modules
- Media Pools
Re-use media like images, movies, audio files and applets
- Mediacasts
- Wikis

ILIAS Content Modules

ILIAS offers different possibilities of importing and creating content for e-learning. Therefore, ILIAS is more than a course player. It is a platform for creating and publishing content.

The following table shows the ability of ILIAS for content management:

Content Type	Import	Authoring	Export
SCORM 1.2 learning modules	X	X	X
SCORM 2004 learning modules	X	X	X



AICC and HACP learning modules	X	-	-
ILIAS Learning Modules (XML)	X	X	X
HTML Learning Modules	X	-	-
Glossaries (ILIAS)	X	X	X
Wiki	-	X	-
Files (any format)	X	-	-
Podcast/Mediastream (Audio&Video)	X	-	-

Learning Management Features

ILIAS offers several possibilities to manage the learning process of users. Learning objects can be made accessible under pre-defined conditions, e.g. a user needs to fulfil one or several preconditions before getting access to a new learning object. It is also possible to create learning paths based on the assessment of each learner's knowledge.

- Time-controlled and test-sensitive release of learning materials in courses
- Learning objectives oriented allocation of learning materials
- Overview of the monitoring of the personal learning progress on the level of courses for course members and tutors (storage period in the learning modules, test results, articles in the forums etc.)

Test and Assessment

ILIAS offers an integrated environment for the creation and enforcement of tests & assessments. This can be used for the monitoring of learning progress by the users as well as the tutors and examiners. The test & assessment supports the following types of questions:

- Multiple choice
- Single choice
- Allocation questions
- Cloze questions (free text, select box)
- Arrangements duties
- Hot spot (search images to click on)
- Unsettled questions

Questions are deposited in a question pool and arbitrarily re-usable. All kinds of types of questions can be combined in setting the tests. The different weighting of the answers, the determination of the schemes to evaluate and the margin of error in announced answers (for instance slips of the pen) are supported. The examination performance of a participant can be used to activate self-controlled new, previously arranged contents.

Also the configuration of (anonymized) assessments is available via the integrated authoring tools and can so be appointed in every learning scenario very easily. Basic descriptive scores (for instance



frequency of occurrence) are directly announced by ILIAS. So among other things can be requested the quality of courses.

All results of tests and questions are exportable in formats of excel or CSV and so deeper evaluable in specific evaluation tools (for instance SPSS). Course Management

ILIAS offers a comprehensive and flexible course management to create a choice of eLearning courses. Arbitrary learning modules of the repository can be arranged to courses with forums, chats, groups and other objects. Different entrance rules and current times are supported.

The screenshot displays the ILIAS 5.4 Demo interface. At the top, there is a navigation bar with 'ILIAS 5.4 Demo' on the left and several utility icons (mail, chat, user, search, profile) on the right. Below this, a secondary navigation bar shows 'PERSONAL DESKTOP' and 'REPOSITORY'. The main content area has a breadcrumb trail: 'Repository » Funktionen und Szenarien » Kursmanagement » LoK 'Bruchrechnung''. The course title 'LoK 'Bruchrechnung'' is prominently displayed, with a subtitle 'Beispiel für einen Lernziel-orientierten Kurs in ILIAS' and an 'Actions' button. A horizontal menu below the title includes 'Content', 'Info', 'Members', 'Learning Progress', and 'Unsubscribe from Course'. Under 'Learning Progress', there are buttons for 'Expand All', 'Collapse All', and 'Reset Results'. A yellow highlighted section contains a 'Learning Objective: Kürzen und Erweitern' with the text 'Das Kürzen und Erweitern von Brüchen beherrschen.' and a progress indicator showing '0%' (100% required). Below this, a list of learning materials is shown: 'Bruchrechnung > Kürzen und Erweitern (Chapter)', 'Übungstest 1: Kürzen und Erweitern', and 'Qualifying Test "Kürzen und Erweitern"'. A small blue dropdown arrow is visible at the bottom right of the list.



Add New Item ▾

▾ CHAPTER 1 - WATERWAYS [COMPETENCE 1]



This chapter is focused on the important traffic routes in Europe, their classification and international waterways. In addition, the critical factors influencing transport planning on inland waterways - seasonal influences of weather and IWT infrastructure such as fairway depth, ports and other - are discussed.

KNOWLEDGE AND SKILLS ▾

Icon: Document and progress bar. Status: Not completed.

Classification of Waterways

Icon: Document and progress bar. Status: Not completed.

European and international waterways

Icon: Puzzle piece. Status: Completed.

Test - Classification of Waterways

Icon: Puzzle piece. Status: Completed.

Test - European and international waterways

Example setting up learning modules for COMPETING



Chapter 1 - Fire Theory and Fire Classification

[Content](#) [Table of Contents](#) [Download](#) [Info](#) [Edit Page](#)

Classes of fire

	A	Class A fires are fires in ordinary combustibles such as wood, paper, cloth, trash, and plastics. These solid substances are mainly of organic origin and contain carbon and its compounds.
	B	Class B fire refers to a fire involving flammable liquids such as petroleum (gasoline, kerosene, petrol, diesel, octane etc.), paint, alcohol, solvent, oil and tar etc., that normally do not leave any embers or residues (or very low amounts of residues).
	C	Class C fires include flammable gases such as propane and butane
	D	Class D fires are fires in combustible metals such as potassium, sodium, aluminum, and magnesium
	E	Class E fires involving energized electrical equipment such as motors, transformers, and appliances
	F	Class F fires are fires in cooking oils and greases such as animals fats and vegetable fats.

What is fire?

Sources of ignition

Example Content Module in ILIAS

The close functional linkage of the course management with test & assessment in ILIAS allows the individual check-up of previous knowledge and accomplished learning target of the course members. The tool "tracking of learning progress" supports the course tutor in aiding the course members. So he catches at a glance which course member didn't yet access certain contents and which course member already attended successfully certain parts of the courses.

Communication

For communication purposes ILIAS offers an internal news system, discussion forums and an combined PHP/Java chat. Tutors can moderate forums and chats.

- An internal news system for all users incl. the administration of the own news and profile
- ILIAS supports the delivery of internal mails to internal and/or external e-mail addresses as well.
- News to groups
- Discussions forums with different modes of presentation ("Who answered last?" / "Who answered whose questions?")
- Notice of new articles in forums by email
- To attach files to articles in discussions
- Administration of the forums and contents
- Invitation to the chat by the 'Who-is-online?'-mode



- Port to virtual class rooms (iLinc)

Group System

Because of an own internal group system ILIAS allows cooperative learning and working on the platform without additional tools. Learning groups, working groups or groups for certain fields of interest could be constructed.

Users can create groups that are open for everyone or have specially defined access restrictions. Other users can be invited or get access with a password. All necessary tools for the administration of group members and resources are part of the system.

- Groups with different access settings (open or no registration, required registration, required invitation, private or public groups)
- Administration and delivery of group resources, e.g. learning modules, forums or files
- Administration of group members and invitation of new members
- Access control and permission settings to tools and features
- Construction of cascading groups (groups could contain subgroups)

Supported Standards

ILIAS version 3 supports the following e-learning standards:

- SCORM 1.2 (LMS-RTE3 compliant) and SCORM 2004
- AICC
- LOM metadata
- IMS QTI (Test & Assessment Tool)



INeS – Platform based on ILIAS LMS

INeS Danube is an e-learning platform open to all interested at www.ines-danube.info (www.ines.info). It provides a modern form of education in the field of logistics on inland waterways in the Danube region with particular reference to intermodality. The platform caters to the needs of different target groups, whether pupils or students of educational institutions focusing on logistics, practitioners like shipping companies or the manufacturing industry

INeS stands for “Inland Navigation e-Learning System” and was developed and updated during several EU funded projects. The INeS platform is based on the open source LMS ILIAS.

viadonau (AT) is currently the responsible operator of the INeS-Danube platform for content in English and German language and the domain owner of www.ines.info and www.ines-danube.info.

Additional INeS platforms exist with the content translated to other languages in the danube region (SK, HU, HR, SK, BG, RO) and there is an INeS platform with the content adopted for Rhine-Maas-Schelde in Dutch, English and German language. Those platforms were setup by former project partners and are under their responsibilities. It is not planned to integrate this sites (although it could be part of an integration at a later stage).

Within the COMPETING project the INeS platform will be updated and optimized to provide learning material and tools according the EU Directive 2017/2397 and CESNI standards for operational and management level qualification.

Domain/Addressing Concept

www.ines.info will be the main entry page (“homepage”) to access all available content (from COMPETING project and former projects).

(The website www.ines.info was originally designed to link to all available language versions of INeS-Danube/RMS, created with flash-elements, this site is currently not available).

www.ines-danube.info will be setup as a subpage within the INeS platform. It can be discussed, if this URL should consist in the future or if it’s shut down after www.ines.info has been established as reference point.

GDPR/User Data Concept

ILIAS provides login for users and stores individual data. In general, this will require a GDPR statement (currently not available on the platform).

The use cases defined for COMPETING will not require individual user accounts for students or teaching staff. The option to register with individual user accounts for ines-danube will be disabled and it is planned to delete already registered user accounts as there is no additional feature/benefit for registered users.

Individual user accounts are necessary for (COMPETING) project partners during setup of the new learning content.

Other usage of the platform in future blended learning scenarios can be provided but will cause higher administrative (support) effort and will require adoptions in the user agreement/GDPR statement.



ILIAS updates for INeS platform and setup COMPETING structure

The INeS platform was running on an outdated version of ILIAS and had to be updated to the newest available Version. The update was done on a parallel installation on a new (virtual) server, transferring the LMS data to the new version. In this way, the new system could be setup with a new design and website visitors could work on the platform without downtime.

- Update to ILIAS 5.4
- Setup new project space for structure according COMPETING learning modules on the platform
- Setup and administration of user accounts for COMPETING consortium members

Hosting concept for IneS platform

The EDINNA consortium decided to take over the hosting of the LMS, which guarantees a sustainable provision of the developed services of the COMPETING project. An agreement between EDINNA and the current responsible organisation viadonau will be exchanged during the COMPETING Project in Q1/2021, before the existing hosting contract expires.

Maintenance

System

All system SW-components (LAMP) should be maintained and updated by the hosting service provider

ILIAS Update release cycle:

Minor – releases: every month (bug fixing and security fixes)

Major – releases: every year (bringing up new functionality, changes in skin (UI-design) need to be adopted)

Security fixes are provided for 3 years for every release.

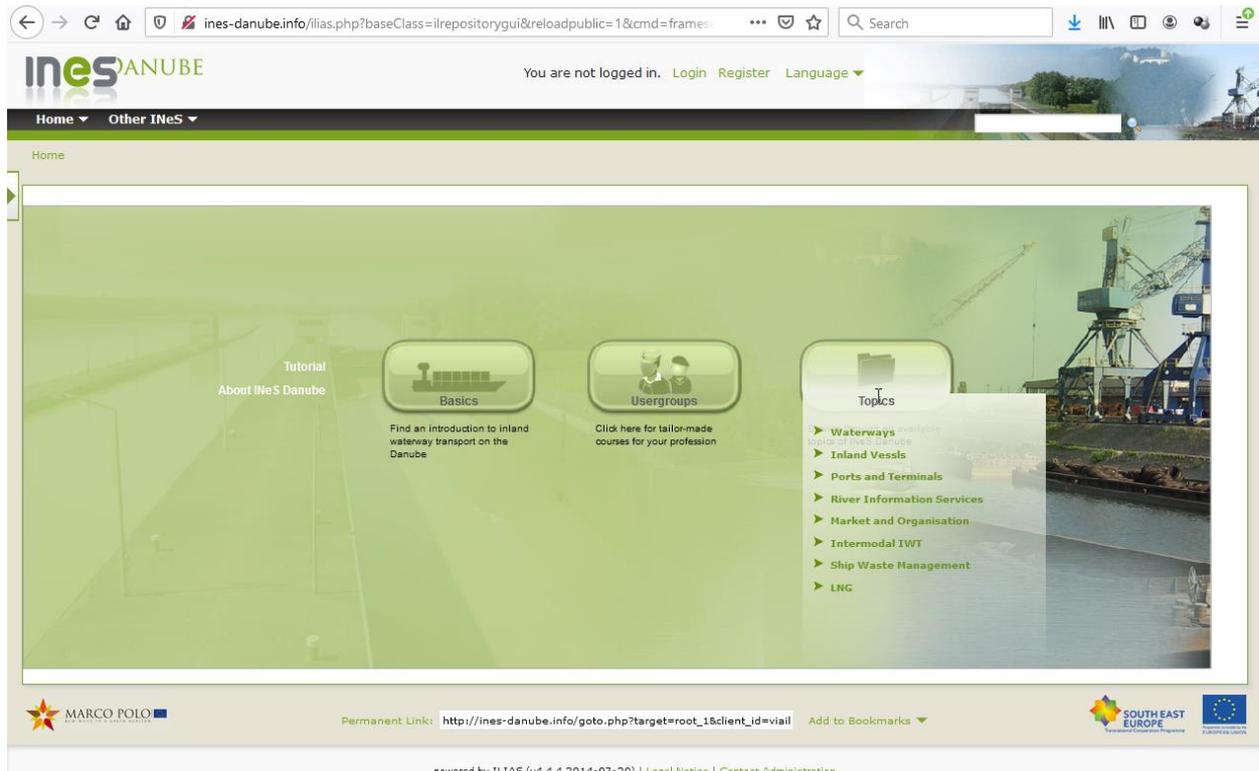
Minor releases need to be applied only, if bug fixing or security fixes are necessary and are done with less effort. Major releases can cause more effort, especially, when the overall layout and design needs to be adopted.

It is not necessary to update every year to the newest release, unless there are new features implemented, that should be provided to INeS users. The change to the next major release need to be done, before security fixes are no longer provided for the installed version (at least every 3 years).



New Screen design applied for INeS platform

After the update to V.5.4, a new layout and screen design was applied. The new screen design follows the responsive design approach (best presentation of content on all screen sizes and devices) provided by the ILIAS System. Parts of the content on the INeS platform still used elements based on flash technology, which are no longer supported by browsers due to security issues. This elements have been replaced by standard web objects (graphics and JavaScript/CSS code).



Start page of INeS-Danube (Version ILIAS 4.4.)



INeS Inland Navigation eLearning System

Language Login

ines HOME

Home

Basics

The INeS Basic Course provides an introduction to inland waterway transport on the Danube.

Start Lesson

WHAT IS INES DANUBE?

INeS Danube is an e-learning platform open to all interested at www.ines-danube.info. It provides a modern form of education in the field of logistics on inland waterways in the Danube region with particular reference to intermodality. The platform caters to the needs of different target groups, whether pupils or students of educational institutions focusing on logistics, practitioners like shipping companies or the manufacturing industry. Other INeS e-learning platforms focussing on other European regions can be found on www.ines.info.

<p>Waterways</p> <ul style="list-style-type: none">• European waterways• The Danube and its tributaries• Characteristics and classification of infrastructure• Maintenance, expansion and extension of the transport network	<p>Inland Vessels</p> <ul style="list-style-type: none">• Main types of vessels and convoys• Overview of crew members• Analysis of the Danube fleet• Physics of inland vessels• Inland waterway fleet	<p>Ports&Terminals</p> <ul style="list-style-type: none">• Ports and transhipment sites• Transhipment methods and equipment• Storage of goods• Selected Danube ports	<p>River Information Systems</p> <ul style="list-style-type: none">• General information on RIS• Fairway information• Traffic information• Traffic management• Information for transport and
--	--	--	---

Startpage INeS (ILIAS V.5.4.) with new screen design and new layout

Blended Learning

Blended learning is a method of teaching that combines traditional instructor-led classroom activities with technology based digital learning activities in which students have control over their individual learning path and/or time and/or place. A blended learning scenario requires a didactical setup in which the different learning activities are integrated in a course design that enables a richer learning experience for the students. All classroom activities and phases with individual learning, including digital tools, need to be set up along a defined learning path for the achieved learners outcome.

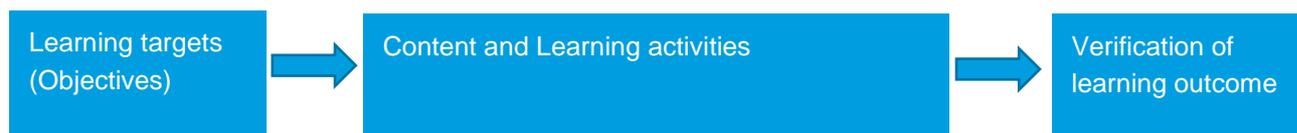
Following a blended learning course design the provided learning material has to support several different types of learning activities and the application of various types of digital tools for the learners. The course designers/content authors are responsible to consider this integrated approach in the course manual/compendium.



The digital platform (“blended learning environment”) will be set up to provide the created learning material as a collection of learning objects for a specific competence to enable a flexible application and to support different forms of training programs.

Course/Curriculum Design

The design of a learning process covers three different dimensions:



Every learning unit (i.e. lesson, chapter, ...) requires:

- the description of the learning targets
- content and different learning activities to achieve the objectives
- the possibility for the learner to proof the learning outcome according the given learning targets

An integrated approach in the conception of course modules: online/offline, synchrony/asynchrony learning phases must be considered in the creation of learning material. For the COMPETING project curriculum, a learning unit is created for every subitem from the “knowledge and skills” column in the CESNI Standards of Competence table and should be designed according this three dimensions model. Partners need to define the minimum requirements of a content module to achieve a common quality standard.

To make the project partners familiar with designing blended learning, the ABC Curriculum Design method was introduced in a workshop during the consortium meeting in Galati (Oct. 2019).

The Arena Blended Connected (ABC) Curriculum Design Method

The ABC methodology was developed by the University College London for transferring “classical” classroom settings to a learner centered blended learning design. The methodology and supporting working material (templates, instructions,...) is released under Creative Commons License.

Introduction to ABC Method and tools: <https://blogs.ucl.ac.uk/abc-ld/> or <https://abc-ld.org/>

Following the ABC method, learning modules are designed in visual storyboards, structuring learning sequences in six different learning type activities:

- Acquisition • Collaboration • Discussion • Investigation • Practice • Production



Learning types activities , V- Visible learning A - can be assessed (F or S)

Investigation

Web search (forum, wiki) V
OER resources (external)
Literature reviews and critiques (forum/blog/wiki/RSS) V
Field/lab observations (media/blog/wiki) V
Action research V
Authentic research / data analysis – write a paper V
Lead a group project V

Practice

MCQs - formative with automatic feedback V/A
Online role play (forum, virtual classroom)
Reflective tasks – group or individual (forum) V/A
Case studies (forum, lesson) V/A
Rapid-fire exam questions (forum) V/A
Advanced role play – you are the consultant etc. V

Production

Interview an expert (video/forum/chat) V
Literature reviews and critiques (forum/blog/wiki/RSS) V/A
MCQs - formative with automatic feedback V/A
Develop a shared resource library (database/glossary/wiki) V/A
Shows/demonstrates learning (displays, posters, presentations) V/A
Portfolios (MyPortfolio) V/A
Case studies (forum, lesson) V/A
Summarisation tasks (upload texts – individual or group) V/A
Rapid-fire exam questions (forum) V/A
Concept mapping (external) V
Create video of performance (media) V/A
Audio commentary of performance (media) V/A
Skype or virtual classroom 'viva' V/A
Make and give a presentation (external) V/A
Video blog (external) V/A
Write a report (external) V/A
Make an analysis (external) V/A
Case studies V/A
Advanced role play – you are the consultant etc. V
Action plan for workplace V/A
Action plan for further study V/A
Authentic research / data analysis – write a paper V/A
Prepare professional briefing V/A
Create, make a case (study) V/A
Create podcast (media) V/A
Work assignment (blog/report) V/A
Interview professional colleagues V/A
Lead a group project V/A

Acquisition

Guided readings (library resources)
OER resources (external)
Podcast (media) V if students do it
Webinars (virtual classroom) V
Q&A forum (forum, where teachers answer student questions) V
Video lectures (webcast),
YouTube videos (external)
Field/lab observations (media/blog/wiki) V
MCQs - formative with automatic feedback V
Portfolios (MyPortfolio) V

Collaboration

Collaborative wiki - what do we know about ...? V/A
Develop a shared resource library (database/glossary/wiki) V
Social networking – participate (external) V
Special interest groups - share on a topic (forum) V
Mentor other learners V

Discussion

Interview an expert (forum/chat) V
Webinars (virtual classroom) V
Model answers/examples of previous work (forum)
Analyse chat text (in course or uploaded) V
Job/professional reflections (blog) V/A
Group discussions on the topic, problem, reading (chat/blog/wiki) V/A
Social networking – participate (external) V
Reflective tasks – group or individual (forum) V/A
Special interest groups - share on a topic (forum) V
Lead a group project V/A



@ABC_LD
UCL Digital Education

Learning types activities according the ABC method

Workshop ABC Method during consortium meeting in Galati, 29.10.2019



Small working groups: Developing Learning Path Template for the relevant course modules (Consortium Meeting, Galati)



Learning Path Template

A template was developed ('learning path template') to provide a common format for structuring existing and to develop learning material according the different learning activities. Authors can make use of the ABC Curriculum Design method for structuring all learning processes (incl. media and digital tools). The aim of this method is to provide an adoptable path through the learning elements for all phases of a learning unit. The learning path template will be the basis for the production of all supporting learning material and the setup in the learning management system.



	A	C	D
1	Module: 1 - Navigation - OL Level		
2	apter: <1.1> - Competence 7: undertake necessary actions for safety of navigat		
3		1	2
4	Knowledge/Skills	1. Knowledge of safety regulations and checklists to follow in dangerous and emergency situations.	2. Ability to recognize and respond to unsafe situations and follow-up actions according to the safety regulations.
5	Learning Objective	safetymeasures for dangerous goods, mooring and (un)loading	
6	Learning Object (LO)	https://mok.anewspring.nl/do?action=configureContentPart&id=1120&fromPage=manageContent%26contentLabelId%3D4	
7	Duration [min]	20 minuten	
8	Instruction for learners	Read the diffrent chapters. The learners do not have to read all the chapters at once. The chapters can be combined with the online template with questions.	
9	Instruction for trainers (if. avail)	Dutch	
10	Assessment / Evaluation	There is a practical and theoretical test at the end of the semester.	
11	Type of didactical sequ.	Acquisition	
12	Learning Object Status	LO has to be translated	LO missing

Example: Description of a learning activity in the learning path template



The 4 steps in creating e-learning for Competing

The different small working groups are in the process of writing the Course Manual and collecting Lesson Materials. The Course Manual will give guidance for the partners in how to create their own education. The Course Manual refers to lesson materials on the Illias Platform. As we are all dealing with competences the goal is to ensure that students are acquiring the knowledge and skills that are deemed to be essential to success in IWT. In the end a student needs to show that he is able to perform to a certain standard to execute their job in IWT. A logical approach is there for a combination of practical and theoretical lesson materials.

The Illias platform will partly function as a repository where different learning objects can be found. The learning objects can be divided in Theoretical content supporting the knowledge part en practical content supporting the skills part of the competence. To make sure every student can show their knowledge and skills there should be theoretical and practical assessments. These assessments aren't the model exams, but a proposal to test in a formative way the knowledge and skills of a competence.

By collecting the materials in the Learning Path Template or in the Excel-template every small working group has an overview of their lesson materials. The e-learning team gives guidance in how to present these materials in Illias and can transfer the materials in to learning objects and to the Illias platform. In order to do this in a structured way we ask the partners to follow the next steps.

Note: The lesson materials aren't obligatory to use for the partner schools. They are free to use or to inspire.

It is not the intention of the E-learning team to increase the amount of work but to make a connection with work that already has to be done. But to establish a minimum requirements of the delivery of the lesson materials to be found on Illias.

Step 1: The small working groups develop 10 multiple choice questions (single or multiple answers) per competence. The e-learning team will transfer the questions to the platform.

The partners aren't bound to multiple choice, Illias also gives the possibility for different types of questions. Partners can choose the following options:

- Multiple Choice Questions (single answer)
- Multiple Choice questions (Multiple answers)
- Hot spot / Image Map question
- Ordering Questions
- Matching questions
- Close Questions (Drop Down Text field)



OL 3.1.2.5-Q1

Main characteristics of heavy density cargoes are:

- Occupy less than OL 1.1333 m3 of space per ton
- Occupy more than OL 1.1333 m3 of space per ton
- Mainly general types of cargo
- Mainly bulk cargo-various ores, copper rods, cement, etc.
- When loaded ship will immerse to the maximum draught line, but its holds will not be full
- When loaded ship's deadweight will not be utilized even though its holds are full



A sample test showing all question types can be found on ILIAS: http://ines-danube.info/goto.php?target=tst_5644&client_id=ines-5

First we will start with only multiple choice (single or multiple answers) The questions are written in English via the GIFT-format. The GIFT-Format is explained on the next page. This makes it easier and less labour-intensive for the e-learning team to import all the questions. Make sure you mention the following subjects.

- Topic, OL or Management level
- Competence (Numbering format)
- Difficulty of the question (optional / to be further discussed)
- Question
- Answer A (optional: feedback on this answer)
- Answer B
- Answer C
- Answer D

The GIFT format combines question text and answers with special formatting to enable an ILIAS conform input format. A list of questions can be imported directly to ILIAS, instead of re-typing every questions into the platform question editing forms, saving the e-learning team a lot of retyping or cut and paste. The following format is applied to every question:

```
-----  
// Comment, Metadata (Difficulty)  
:::<Topic Level> <CompetenceNumber>-<QuestionNumber>::  
Question  
{  
=Correct answering option for multiple/single choice  
~wrong answering option for multiple/single choice  
#feedback text for preceding multiple answers  
}
```



For Example:

```
// Difficulty A
```

```
::ML 1.3.1-1
```

How is changing the course of the river by cutting bends called?

```
{
```

```
~Regulation
```

```
#regulation of rivers consist of the creation of a high waterbed
```

```
~Normalisation
```

```
# Normalisation consists of maintaining a specific depth and width of the river.
```

```
=Correction
```

```
# Correction consists of removing or extending hindering river bends.
```

```
~Canalisation
```

```
# Canalisation: The canalisation of a river consists of the putting in place of dams and locks
```

```
}
```

```
// Difficulty A
```

```
::Navigation ML 1.3.1-2
```

Questiontext...

```
{
```

```
~ is for a wrong answer
```

```
= is the correct answer
```

```
# is for feedback
```

```
}
```

If a picture needs to be added please put it at the right spot in the question and also send the picture with a clear file name to the e-learning team. Use the same numbering format <Topic-Level- Competence- QuestionNumber-PictureNumber> for the picture filename.(To follow accessibility rules, every picture must provide an alternative text)



Step 2: The small working groups develop content to match these questions. The e-learning team will transfer the content to the Illias platform.

In PowerPoint build per competence a sequence of text, pictures, video to prepare the students for the questions developed in step 1. Students should be able to understand the slides without any extra classroom lessons.

Start with the headlines and from there go into further detail. Create questions after each subject to make sure the student understands the materials just presented to him.

If possible do not use too much text, but use images and video.

If necessary the e-learning team can adjust the text and create supporting images.

Step 3: Create a Practical Assessment

As e-learning team we just give the possibility to put this part online in Illias. The partners can create their assessment in a WORD-document, but preferable create a PDF file of the assessment.

The e-learning team will upload the documents.

Step 4: Create a practical lesson with exercises

As e-learning team we just give the possibility to put this part online in Illias. The partners can create their assessment in a WORD-document, but preferable create a PDF file.

The e-learning team will upload the documents.

With these steps the Illias Platform will contain learning a basis of materials to support teacher and student in acquiring the needed knowledge and skills belonging to a competence. The Course Manual will refer to this platform.



Planning

Subject	Deliverable	Deadline
Multiple choice questions	10 questions of the first competence of Operational and Management Level (total of 20 questions)	Wednesday May 27th
Supporting e-learning	Supporting PowerPoint per competence	To be discussed
Multiple choice questions	10 questions per competence 2 - 9 of Operational and Management Level (max of 80 questions)	31st of August
Supporting e-learning	Supporting PowerPoint per competence	To be discussed
Multiple choice questions	10 questions per competence 10 - 19 of Operational and Management Level (max of 80 questions)	30th of September
Supporting e-learning	Supporting PowerPoint per competence	To be discussed



Subject	Standards of competence	Total of competences
Navigation OL	1.1 – 1 t/m 11	11
Navigation ML	1.1 – 1 t/m 6 1.1 – 1 1.3 – 1 t/m 8 1.4 – 1 t/m 4	19
Operation of the Craft OL	2.1 – 1 t/m 5 2.2 – 1 t/m 3	8
Operation of the Craft ML	2.1 – 1 t/m 4 2.2 – 1 t/m 2	6
Cargo Handling, stowage and passenger transport OL	3.1 – 1 t/m 6 3.2 – 1 t/m 4	10
Cargo Handling, stowage and passenger transport ML	3.1 – 1 t/m 4 3.2 – 1 t/m 2 3.3 – 1 t/m 5	11
Marine Engineering and electrical, electronic and control engineering OL	4.1 – 1 t/m 8 4.2 – 1 t/m 5	13
Marine Engineering and electrical, electronic and control engineering ML	4.1 – 1 t/m 2 4.2 – 1 t/m 4 4.3 – 1 4.4 – 1 t/m 3 4.5 – 1 t/m 3	13
Maintenance and Repair OL	5.1 – 1 t/m 6	6
Maintenance and Repair ML	5.1 – 1 t/m 4	4
Communication OL	6.1 – 1 t/m 6 6.2 – 1 t/m 4	10
Communication ML	6.1 – 1 t/m 3 6.2 – 1 t/m 2 6.3 – 1 t/m 4	9
Health and Safety and environmental protection OL	7.1 – 1 t/m 3 7.2 – 1 t/m 6 7.3 – 1 t/m 4 7.4 – 1 t/m 4	17
Health and Safety and environmental protection ML	7.1 – 1 t/m 4 7.2 – 1 t/m 6 7.3 – 1 t/m 4 7.4 – 1 t/m 4	18



Appendix A: LMS Comparison

	A NEW SPRING	ILIAS	MOODLE	CAPTIVATE/SHAREPOINT
STC Experience in LMS	v		v	v
MAH Experience in LMS	v			
FHOO Experience in LMS		v	?	
App Available	yes	with constraints not all functionality	no	no
Prior knowledge required?	no	yes	yes	yes
White label option	partially	yes	partially	partially
Multiple Devices / Responsive	fully responsive	yes	yes	no
Multiple rolls: (admin, students, guest, teacher)	yes	yes	yes	no
SCORM compliant	yes	yes	yes	yes
Follow Student Progress	yes	yes	not fully	not fully
LMS TYPE	Commercial	Open source	Open source	Commercial/Open Source
TYPE Solution	LMS	LCMS	LCMS	LMS
Memo trainer	Yes	No	No	No
Need to set up environment?	No	Yes	Yes	Yes
Helpdesk?	selfservice onboarding	No	No	No
In our own management	No	Yes	Yes	Yes
Accessible for multiple organisations	Yes	yes	Yes	Yes
Import/export/function material	depending on the type of file			
Possibility to add different kinds of media (MP4)	Yes, size of the file doesn't matter	Yes, size of the file does not matter	Yes, size of the file doesn't matter	Yes, size of the file doesn't matter
Possibility to embed external applications (f.e. H	Yes, f.e. webinar, simulation, HP3	HP5 Plugin	depending on the type of file	depending on the type of file
Quizzes (different kind of questiontypes)	Multiple choice, multiple respons, fill in the blank, hotspot, open question, Matrix, Drag and Drop, Matching, fill in the blanks	Multiple choice, multiple respons, fill in the blank, hotspot, open question, Matrix, Drag and Drop, Matching, fill in the blanks	Multiple choice, multiple respons, fill in the blank, hotspot, open question, Matrix, Drag and Drop, Matching, fill in the blanks	Multiple choice, multiple respons, fill in the blank, hotspot, open question, Matrix, Drag and Drop, Matching, fill in the blanks
Possibility to build a library	Index can be used as a library	yes	yes	Sharepoint has the option
Simple navigation for teacher and student	yes	yes	yes	yes
Different languages available	They support English and Dutch.	all languages	All languages	All languages
Easy to subscribe for users/access the material	yes	yes	Yes	Yes

LMS comparison



Appendix B: Sample Formatting questions in GIFT Format

//Tag for comment – i.e. level of difficulty, reference to document,...

::ML-1.1.1-1::

Which rivers will you find in Steyr ?

```
{
=Steyr
=Enns
~Danube
~Traun
}
```

//Tag for the second question

::ML-1.1.1-2::

And which rivers are flowing through Enns?

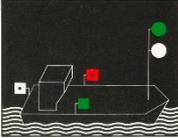
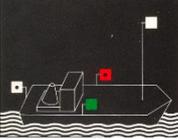
```
{
=Danube
~Steyr
#please read page 2 from the learning modul "waterways"
=Enns
}
```

//Question with Images, please provide images as extra files (Filename identical with question-title+a b c ...)

::ML-1.1.1-3::

It is getting dark the navigation lights of the Emeli must be on.

In which image can you see the right lighting for the Emeli of a large motor vessel:

```
{
~IMG:ML-1-1-1-3a 
~IMG:ML-1-1-1-3b 
=IMG:ML-1-1-1-3c 
}
```

//Metacharacters: if "=" "%" "#" is part of your question text, use "\" before i.e

::ML-1-1-1-4::

Some questions about numbers and percentage

```
{
~50\%
=70\%
~distance\=80\%
}
```

//Matching question



::ML-1-1-1-5::

Create correct Port-River Pairs

{

Rhine->Duisburg

Danube->Regensburg

}



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