



# RAGE

## Realising an Applied Gaming Eco-system

Research and Innovation Action

Grant agreement no.: 644187

### D6.2 – Summary, Analysis, Road-mapping and Production of Training materials

RAGE – WP6 – D6.2

Version M48

Project Number	644187
Due Date	31 January 2019
Actual Date	31 January 2019
Document Author/s	JM, MH, DH
Version	2.1
Dissemination level	PU
Status	Final
Document approved by	Wim Westera, Ruben Riestra

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 644187



<b>Document Version Control</b>			
<b>Version</b>	<b>Date</b>	<b>Change Made (and if appropriate reason for change)</b>	<b>Initials of Commentator(s) or Author(s)</b>
0.1	04.12.2018	First intermediate version for internal sharing	JM
0.2	14.01.2019	Chapters in process	JM
1.0	27.01.2019	Ready for quality control	JM
1.1	28.01.2019	Refinements	MH, WW
1.4	30.01.2019	Additional input	JM
2.1	30.01.2019	Ready for submission	RR, JM, DH

<b>Document Change Commentator or Author</b>		
<b>Author Initials</b>	<b>Name of Author</b>	<b>Institution</b>
JM	Jana Mertens	FTK
MH	Matthias Hemmje	FTK
DH	Dominic Heutelbeck	FTK
WW	Wim Westera	OUNL
RR	Ruben Riestra	INMARK

<b>Document Quality Control</b>			
<b>Version QA</b>	<b>Date</b>	<b>Comments (and if appropriate reason for change)</b>	<b>Initials of QA Person</b>
1.0	28.01.2019	Wording and Refinements	WW
1.4	30.01.2019	Wording and Refinements	RR

## TABLE OF CONTENTS

	Page
<b>EXECUTIVE SUMMARY .....</b>	<b>4</b>
<b>1 INTRODUCTION .....</b>	<b>5</b>
<b>2 INFORMATION AND KNOWLEDGE SHARING SYSTEM .....</b>	<b>5</b>
2.1 Stakeholders and user communities .....	5
2.2 Information and content collection process final results .....	5
2.3 Knowledge Management final results .....	7
<b>3 EVALUATIONS OF THE ECOSYSTEM PORTAL .....</b>	<b>9</b>
<b>4 TRAINING MATERIAL .....</b>	<b>9</b>
4.1 Development of RAGE training offerings .....	9
4.2 RAGE training offerings .....	9
<b>5 ROADMAPING BEYOND THE PROJECT RESULTS.....</b>	<b>14</b>
<b>6 SUMMARY AND CONCLUSIONS.....</b>	<b>14</b>
<b>REFERENCES .....</b>	<b>15</b>
<b>7 ANNEX 1 – TUTORIAL: COURSE AUTHORIZING WITH COMPETENCES .....</b>	<b>16</b>
7.1 Login .....	17
7.2 Create a new Course.....	18
7.3 Create course material .....	24
7.4 Create assignments.....	32
7.5 Create a new Competence Framework .....	38
7.6 Use of competences - Create a new learning goal .....	58
7.7 Assigning profiles to the course .....	65
7.8 Use of competences - Create a new condition profil.....	66
7.9 Enroll to the new course .....	72

## EXECUTIVE SUMMARY

Deliverable 6.2 describes and summarizes the final results of the population of the RAGE Ecosystem portal (EP) with information, knowledge and training material.

As described in D6.6 in month 17, the Ecosystem portal was developed with particular consideration of the demands and requirements of small and medium sized game developing companies, education providers and related stakeholders like applied gaming researchers and end-users. The Applied Gaming (AG) industry should thereby get the best support to connect, communicate and create new effective technology based software components in order to build new, exceptional learning games.

RAGE therefore developed in a participative approach a multi-sided platform, providing services to the Ecosystem *customers*, represented by Game developers acting as *consumers* and technology providers acting as *sellers* or *suppliers* in a core interaction which involves specialised AG technology and Know-how transfer and marketplace mechanisms.

The contents in the RAGE EP are primarily composed of game components (software building blocks) and corresponding material, tutorials (text and video), publications, training material and training courses.

In detail, there are 40 RAGE components, 2 external components, 6 games, 93 documents - consisting of manuals, scientific publications and E-learning references, 10 online training courses and 8 multimedia resources (videos and software) available in the EP.

Together with the access to an Interactive Stakeholder Map, users of the EP have the opportunity to search and find resources, download them, learn about how to integrate and use them, learn about creating games with the components, get in contact with the providers of the resources and find additional contacts as well as build alliances with stakeholders of the AG community.

The core version of the EP and its services are tested and validated. The next step will be to make the EP a long-lasting, self-sustaining Portal. For this purpose, the functionalities for selling and buying, the shop system, were set up and are ready to be launched as part of the foreseen commercial exploitation of the EP as core element of the RAGE Ecosystem. Library, Media Archive, Software Repository are prepared to be systematically expanded by incoming external resources, and the Social network interoperability support is in place. Tutorials explain how to use the portal and how to make components or how to create specific aspects of applied games.

The content of this deliverable is part of the operational documentation prepared for the teams involved in the roll-out of the RAGE Ecosystem, thus representing its first priority audience.

## 1 INTRODUCTION

The interest in Applied Games and their application in education and business areas increased very fast in the last decade (Vasudevamurt and Uskov 2015).

To increase the innovation power of the branch the RAGE Ecosystem portal (EP) is fostering the merging of the heterogeneous Applied Gaming (AG) communities by providing an effective knowledge and innovation management service tool.

The EP serves as an interactive information, knowledge and content management platform and provides a diverse set of services across the knowledge value chain. A combination of training courses, training materials, multimedia resources and game components / game technologies together with social network interoperability provides a valuable context for collaboration and creation of innovative Applied Games.

The portal can be reached via <https://www.gamecomponents.eu>.

The RAGE project and herein Work package 6 developed the EP corresponding with the services of content and knowledge management, structure-giving taxonomies, and a learning management with Course Authoring Tool (cf. D6.1, D6.3, D6.4, D6.5 and D6.6)

## 2 INFORMATION AND KNOWLEDGE SHARING SYSTEM

### 2.1 Stakeholders and user communities

The stakeholders of the EP are different user groups and communities who will be using the services and possibilities of the system developed and provided by RAGE. The main target groups are:

- researcher (groups) and experts,
- asset developers,
- gaming companies and developers,
- training providers (educational providers, intermediary organizations), and
- end users (learners) in application scenarios (industrial and institutional sectors).

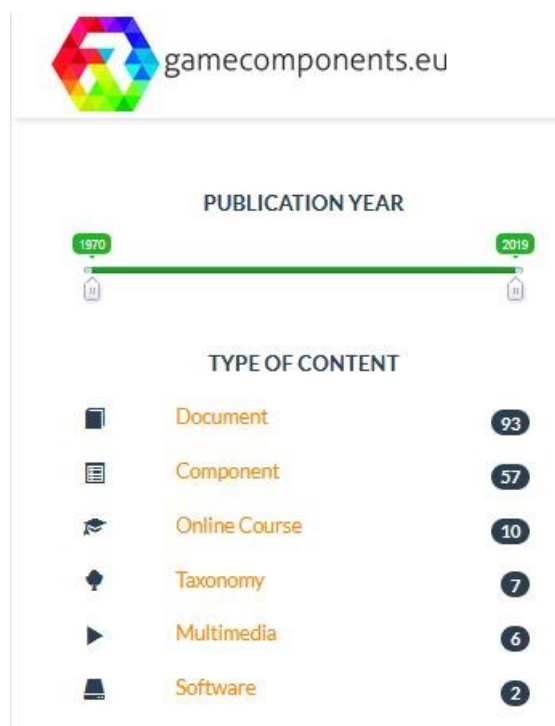
The project has shown that the industrial perspective of the game companies improved the usability of the portal. For example the taxonomies were revised together with the companies which made a big difference for the search functionality.

The large number of researchers and AG industry players involved in RAGE provided the initial input on basic AG content and knowledge for the Ecosystem portal, particularly publications.

### 2.2 Information and content collection process final results

The process was carried out successfully. The phased approach was accompanied by instructions or tutorials and face to face training at the RAGE meetings to support the partners in the upload and annotation steps. Using different so called user stereotypes with different interests, experiences and skills, the Ecosystem portal was populated only with community specific content.

Figure 1 is showing the numbers of content objects in the EP (at the time finalizing the report).



**Figure 1: Quantity of resources in the EP**

By the end of the project, an exemplary set of 40 RAGE components, 2 external components from the ENVISAGE project<sup>1</sup>, 6 games, 93 documents - consisting of manuals, scientific publications and E-learning references, 10 online training courses and 8 multimedia resources (videos and software) are available in the EP.

**Phase 1:** In the first step the academic researchers and experts out of the RAGE consortium tested the import of component and knowledge resources. The content was the baseline of material (e.g. document corpus) to be available within the Ecosystem portal repository. Textual documents and slides respectively their references were complemented step by step by software components generated by WP2 and WP3 together with accompanying documents, such as documentation, tutorials, presentations and publications.

**Phase 2:** The game development companies of the consortium helped to improve the system. Out of their work on AG design, development and support for the application scenario pilots they assist other game developers of non-leisure domain while enhancing the usability and visual aspects and taking account of tutorials and illustrative videos.

**Phase 3:** As RAGE is having 6 different application scenarios with different end-users and intermediary organizations and several contexts, the related application partners contributed by complementing presentations and the user best practice perspective to support future Ecosystem portal users. Lately also games were uploaded in the system.

Furthermore, the consortium decided to harvest training resources only (cf. section 4.2). The team agreed that it is too complex to harvest AG information or software material subsequently, because the material was not constantly available or not available in the sufficient quality. Therefore the production of own content, mainly training material, was focused on.

<sup>1</sup> <http://www.envisage-h2020.eu/>

## 2.3 Knowledge Management final results

The process was performed in 4 iterations as follows (cf. D6.2):

### ***Iteration 1 (M1 – M12) - Integration and Availability:***

The availability of the EP with its initial services was provided until month 12.

One of the core components for Knowledge Management, the taxonomy, was discussed a bit longer.

### ***Iteration 2 (M13 – M24) - Component Collection, Initial Evaluation and Testing:***

Afterwards the portal was populated step by step with community specific content, mainly game components and related documents. In addition the RAGE component developers created multimedia - and written tutorials to explain how to use and integrate their software components.

To enable semantical annotations and therefore categorization of content and the possibility to search content in the Digital Library and Media Archive, different taxonomies were developed to support different perspectives and understanding of the AG landscape.

One taxonomy is a broader and more complex one, to meet the requirements of the academical users of the portal (RAGCS Scientific taxonomy). The other one is much more market-oriented and lean and was the result of the discussions with game companies involved (RAGCS Practitioner). More complexity was not desired and rated as not practicable. The taxonomies are manageable and extendable, depending on the demand of the users and the variety of material in the system.

Additional taxonomies are included for structuring the learning goals for the learning management and the shop system.

### ***Iteration 3 (M25 – M40) - Business Model driven refinement***

One of the later steps was to refine the portal regarding the results of the business modelling in WP9. Amongst other things the RAGE game developers and therefore practitioners decided to use the smaller, more intuitive and easy to use taxonomy to categorize upload and to find components together with related content to buy or to use. The metadata parameters for the software library content were revised and improved.

The system has been expanded by a full suite of e-commerce features (e.g. shop and coupons). A rating system was added and the visual appearance of the portal and the content, primarily the components, was optimized. A new landing page is now much more inviting and is pointing the way to different services, depending on the user group visiting the page (cf. Figure 2). In addition, the terms of service were defined based on a thorough legal consultation, fulfilling GDPR requirements.



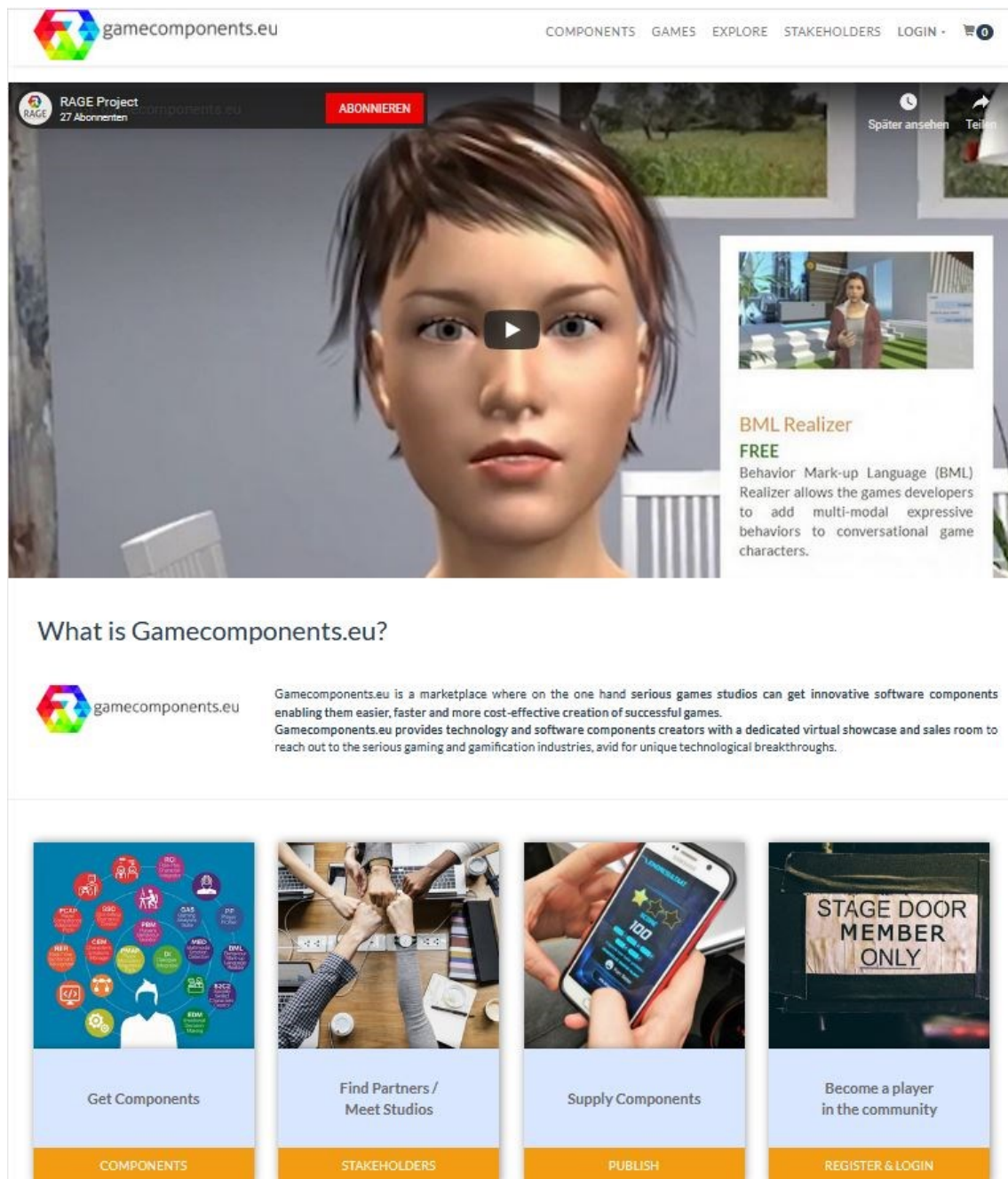


Figure 2: New landing page

To expand the offerings and further added value, training material was developed and provided by the RAGE consortium.

**Iteration 4 (M41 – M48) - Preparation for sustained availability**

In collaboration with WP8 the Ecosystem portal and its services were evaluated extensively during the project runtime. The results were indicators for optimization and confirmed the usefulness and usability of the Ecosystem portal and its offerings.

The infrastructure was further developed to be prepared for an increased number of users and activities on the portal, like upload, download of components and the execution of trainings.



### 3 EVALUATIONS OF THE ECOSYSTEM PORTAL

Together with WP8 a series of evaluations was performed. The first one corresponds to a pre-testing and qualitative validation of the initial features and functionality. The results are published in D6.6 and the corresponding WP8 deliverables. The system was further tested in the course of the project through the continuous use of RAGE partners and external users, such as students from the academic partners. Taking feedback into account, the usability and the services, such as the taxonomy manager and the upload, were improved over the time.

Additional evaluations verified the Seed Taxonomy, the Taxonomy Manager, the Search Habits, the Social Network Mediator and the Authoring Tools for Courses (cf. D8.3 & D8.4).

The results were indicators for optimization and confirmed the usefulness and usability of the Ecosystem portal and its offerings.

### 4 TRAINING MATERIAL

#### 4.1 *Development of RAGE training offerings*

The planning envisaged to arrange workshops and to provide the infrastructure to offer training courses on an online training portal, covering training for both developers and educators in order to amplify AG uptake.

A number of hands-on training sessions at the RAGE meetings and events to support the production of training material were implemented during the lifetime of the project with the aim will be to make these activities self-sustainable by the end of RAGE.

It was noted that brief web sessions for explanations and a tutorial respectively online course were sufficient to explain the creation of these courses to the stakeholders of the consortium.

The topical focus of RAGE training offerings was laid upon addressing technical implementation related to the re-use of components within diverse validation settings. In addition, RAGE-specific training material related to general practical organization and integration issues (WP4: game design, development, and support) was developed by the respective game developers and component holders as they identify a specific demand for this material.

#### 4.2 *RAGE training offerings*

For the training content WP6 consulted in depth with the stakeholders from the consortium and identified two primary goals for aggregating and curating training content on the RAGE portal (cf. D6.4):

- Increasing the adoptability of the RAGE components by providing component specific training material for component developers.
- Go-to online resource for high-quality information on applied gaming principles and training by providing a rich pool of online education sources for the applied gaming professionals.

In addition, the RAGE EP is offering not only the possibility to upload training material but to create training courses with a Course Authoring Tool (cf. Annex 1). The Course Authoring Tool allows to directly integrate RAGE components into the learning material.

To support continuing professional development in the communities and increase the number of participations within the target group (i.e. game developers) it is recommended to provide learning units in the form of short, quickly accessible contents, in different multimedia formats.

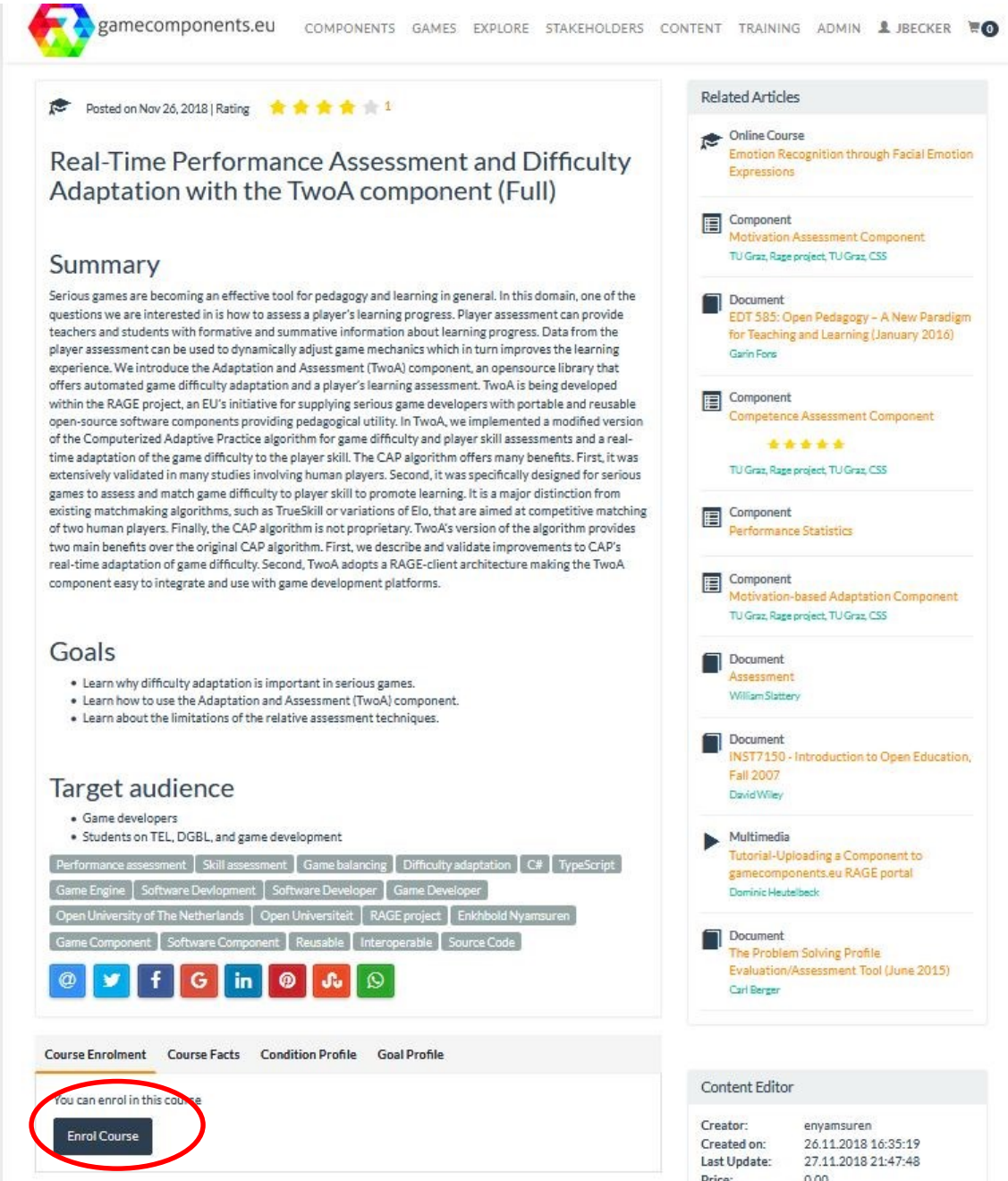
The consortium created 10 training courses for the EP, namely:

- **FAtiMA - An Emotional Agent Architecture**  
The course introduces you to the concept of FAtiMA ( F earNot! A ffec ti ve M ind A rchitecture): an Agent Architecture with planning capabilities designed to use emotions and personality to influence the agent's behaviour.
- **Emotion Recognition through Facial Emotion Expressions**  
This mini-course will help you grab some information about emotion recognition technology from facial expressions, the development, integration, and configuration of a software component called real-time facial emotion detection.
- **Real-Time Performance Assessment and Difficulty Adaptation with the TwoA component**  
This course teaches how data from the player assessment can be used to dynamically adjust game mechanics which in turn improves the learning experience using the Adaptation and Assessment (TwoA) component.
- **Getting started with using RAGE components for game development**  
The course entails a hands-on technical session addressing how to enrich your serious game with RAGE software components. Based on concrete examples discussed and presented in this course you will learn and understand how to quickly unpack, install and integrate software components in your game project.
- **Creating RAGE components using C#**  
This course shows how to create RAGE components using C# and Visual Studio 2017.
- **Natural Language Processing with ReaderBench**  
This course introduces NLP basics and the application of the ReaderBench components.
- **Competence Component (P-CAP: Player Competence Adaption Pack v2)**  
This course presents and explains the Competence Component. It consists of an introduction and basic concept of the component, then a video is given to demonstrate how it works with a game, and finally a conference paper is provided that further explains the component.
- **Unity Gateway**  
In this course you learn about a LTI bridge for Moodle and the Unity Engine. With this technology an interactive Unity game can now be integrated into an online course and be executed at run time through an LTI call.
- **Creating E-Learning Content with the KM-EP Course Authoring Tool**  
This course is a tutorial on creating courses with the KM-EP Course Authoring Tool.
- **X3D Gateway**  
This course teaches how to use the X3D Gateway to integrate Virtual-Reality technology through a LTI bridge with Moodle.

The courses on “Natural Language Processing”, “Emotional Recognition”, “FAtiMA” etc. describing in detail the ideas behind the corresponding RAGE components, their specifics, how to implement and how to use them.

The “Unity Gateway” and “X3D Gateway” courses are covering new components added to the RAGE portal, which were not previously foreseen in the workplan, and exceed the expected outcome of WP by delivering training for additional components.

The “Creating E-Learning Content with the KM-EP Course Authoring Tool” is an explanatory course to introduce new users to the Course Authoring.



gamecomponents.eu COMPONENTS GAMES EXPLORE STAKEHOLDERS CONTENT TRAINING ADMIN JBECKER

Posted on Nov 26, 2018 | Rating ★★★★★ 1

## Real-Time Performance Assessment and Difficulty Adaptation with the TwoA component (Full)

### Summary

Serious games are becoming an effective tool for pedagogy and learning in general. In this domain, one of the questions we are interested in is how to assess a player's learning progress. Player assessment can provide teachers and students with formative and summative information about learning progress. Data from the player assessment can be used to dynamically adjust game mechanics which in turn improves the learning experience. We introduce the Adaptation and Assessment (TwoA) component, an opensource library that offers automated game difficulty adaptation and a player's learning assessment. TwoA is being developed within the RAGE project, an EU's initiative for supplying serious game developers with portable and reusable open-source software components providing pedagogical utility. In TwoA, we implemented a modified version of the Computerized Adaptive Practice algorithm for game difficulty and player skill assessments and a real-time adaptation of the game difficulty to the player skill. The CAP algorithm offers many benefits. First, it was extensively validated in many studies involving human players. Second, it was specifically designed for serious games to assess and match game difficulty to player skill to promote learning. It is a major distinction from existing matchmaking algorithms, such as TrueSkill or variations of Elo, that are aimed at competitive matching of two human players. Finally, the CAP algorithm is not proprietary. TwoA's version of the algorithm provides two main benefits over the original CAP algorithm. First, we describe and validate improvements to CAP's real-time adaptation of game difficulty. Second, TwoA adopts a RAGE-client architecture making the TwoA component easy to integrate and use with game development platforms.

### Goals

- Learn why difficulty adaptation is important in serious games.
- Learn how to use the Adaptation and Assessment (TwoA) component.
- Learn about the limitations of the relative assessment techniques.

### Target audience

- Game developers
- Students on TEL, DGBL, and game development

Performance assessment Skill assessment Game balancing Difficulty adaptation C# TypeScript  
 Game Engine Software Development Software Developer Game Developer  
 Open University of The Netherlands Open Universiteit RAGE project Enkibold Nyamsuren  
 Game Component Software Component Reusable Interoperable Source Code

Course Enrolment Course Facts Condition Profile Goal Profile

You can enrol in this course

**Enroll Course**

#### Related Articles

- Online Course: Emotion Recognition through Facial Emotion Expressions
- Component: Motivation Assessment Component (TU Graz, RAGE project, TU Graz, CSS)
- Document: EDT 585: Open Pedagogy - A New Paradigm for Teaching and Learning (January 2016) (Garin Fors)
- Component: Competence Assessment Component (★★★★★) (TU Graz, RAGE project, TU Graz, CSS)
- Component: Performance Statistics
- Component: Motivation-based Adaptation Component (TU Graz, RAGE project, TU Graz, CSS)
- Document: Assessment (William Slattery)
- Document: INST7150 - Introduction to Open Education, Fall 2007 (David Wiley)
- Multimedia: Tutorial-Uploading a Component to gamecomponents.eu RAGE portal (Dominic Heutelbeck)
- Document: The Problem Solving Profile Evaluation/Assessment Tool (June 2015) (Cari Berger)

#### Content Editor

Creator: enyamsuren  
 Created on: 26.11.2018 16:35:19  
 Last Update: 27.11.2018 21:47:48  
 Price: 0.00

Figure 3: Exemplary screenshot of a training course

The user needs to be logged in to enroll the course (cf. Figure 3).

## Unity Gateway

[Dashboard](#) > [My courses](#) > [Unity](#)

Your progress 

### Information material

[Publications et al on gamification using the Unity Gaming Engine.](#)

 [Unity Gateway a short Presentation](#)

 [Bachelorthesis of the Unity Gateway \(german\)](#)

[Want to try yourself?](#)

[Here's the demo game:](#)

 [Demonstration](#)

[Self-assessment](#)

 [Self-assessment 1](#)

[Short test to see if basics have been understood.](#)

 [x3dom](#)



### Feedback

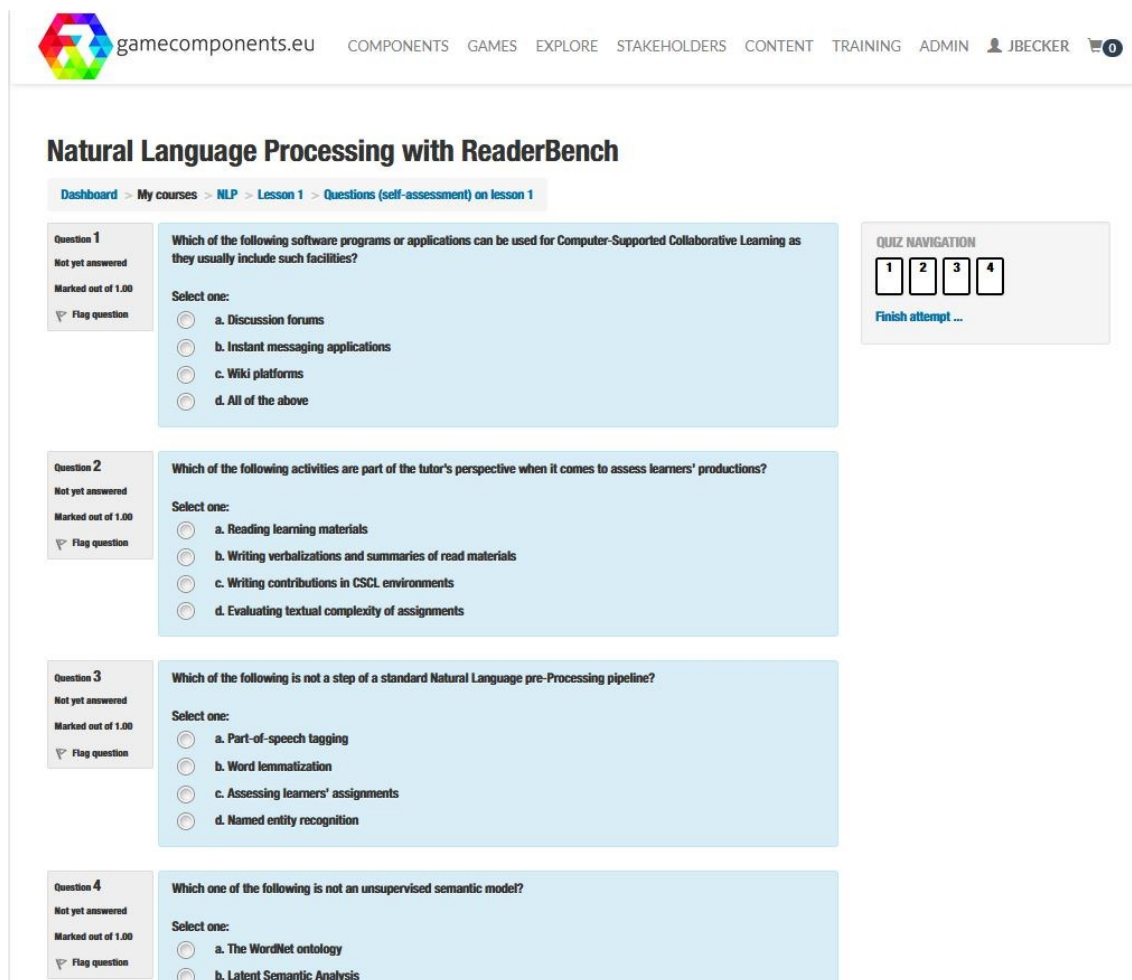
 [Feedback form](#)

[Please indicate your opinion and possible input on this Serious Games approach.](#)



**Figure 4: Exemplary course structure**

Afterwards different media objects are provided to learn the contents. A self-assessment test at the end is serving as a knowledge check, whether the contents have been understood. The tests could be structured by simple “Yes or No” questions, open questions or multiple-choice questions (cf. Figure 5).



The screenshot shows a web-based quiz interface. At the top, there is a navigation bar with the logo for 'gamecomponents.eu' and several menu items: COMPONENTS, GAMES, EXPLORE, STAKEHOLDERS, CONTENT, TRAINING, ADMIN, and a user profile for 'JBECKER'. The main title of the quiz is 'Natural Language Processing with ReaderBench'. Below the title, a breadcrumb trail indicates the current location: 'Dashboard > My courses > NLP > Lesson 1 > Questions (self-assessment) on lesson 1'. On the right side, there is a 'QUIZ NAVIGATION' section with four numbered buttons (1, 2, 3, 4) and a 'Finish attempt ...' link. The quiz consists of four questions, each presented in a light blue box. Each question includes a status indicator (e.g., 'Question 1', 'Not yet answered', 'Marked out of 1.00') and a 'Flag question' link. The questions are as follows:

- Question 1:** Which of the following software programs or applications can be used for Computer-Supported Collaborative Learning as they usually include such facilities?
  - a. Discussion forums
  - b. Instant messaging applications
  - c. Wiki platforms
  - d. All of the above
- Question 2:** Which of the following activities are part of the tutor's perspective when it comes to assess learners' productions?
  - a. Reading learning materials
  - b. Writing verbalizations and summaries of read materials
  - c. Writing contributions in CSCL environments
  - d. Evaluating textual complexity of assignments
- Question 3:** Which of the following is not a step of a standard Natural Language pre-Processing pipeline?
  - a. Part-of-speech tagging
  - b. Word lemmatization
  - c. Assessing learners' assignments
  - d. Named entity recognition
- Question 4:** Which one of the following is not an unsupervised semantic model?
  - a. The WordNet ontology
  - b. Latent Semantic Analysis

Figure 5: Exemplary knowledge quiz

Additional face-to-face training was provided in several events. The list of events is provided by WP9 in D9.3.

## 5 ROADMAPPING BEYOND THE PROJECT RESULTS

In accordance with the Launch Plan (D9.4), the RAGE Foundation will lead the exploitation of the legacy generated by the works of the RAGE project. The Ecosystem portal (functional, reliable, usable and emotionally designed) is showcasing a Community-driven marketplace with

- Upload -, download-, ingest- and harvest- functionalities for software, publications, documents, videos and slides,
- Stakeholder Map,
- Taxonomy management,
- Creation tool for training courses,
- eCommerce management

The next step will be to make the EP a long-lasting, self-sustaining Portal, as foreseen in the RAGE Exploitation Plan.

For this purpose, the functionalities for selling and buying were set up. Library, Media Archive, Software Repository are prepared to be filled with external resources, and Social network interoperability is in place. Tutorials explain how to upload components and how to create components.

The Portal will need to grow in terms of contents and in terms of users. To reach the attention of the corresponding target audience and larger groups of game developers and companies, the Foundation will foster the execution of and participation at events to constantly present new game components and training material. FTK will be present at the Gamescom and Learntec in the next year(s) for example. Additionally scientific conferences will be addressed to ensure a broader audience.

## 6 SUMMARY AND CONCLUSIONS

The deliverable summarizes the results of the information and knowledge collection and provision in the RAGE Ecosystem portal during the project runtime. Technology and media resources as well as documentation and training material were explored and collected from the heterogeneous and dispersed Applied Gaming landscape.

The various consortium partners supported the process step by step with their expertise to create a complex, flexible, scalable Applied Gaming-specific Portal for different user stereotypes with different interests, experiences and skills.

The core version of the EP contains

- a Repository of AG oriented Software (the RAGE components),
- an Interactive Map of Stakeholders related to Business Use Cases,
- a Social Tool Suite Supporting Community Building and Collaboration Mediation and
- Multimedia Training Content and Courses for AG practitioners.

The multi-sided platform will enable the targeted stakeholders to get centralized access to applied game components and the corresponding developers, to benefit from knowledge and training resources and to collaborate and create new outcomes leading to innovative products and services.



## REFERENCES

1. Vasudevamurt, Vinay Bhargav; Uskov, Alexander (2015): *Serious Game Engines: Analysis and Application*. In *Electro/Information Technology (EIT), 2015 IEEE International Conference on ELECTRO/INFORMATION TECHNOLOGY*, At Dekalb, IL



## 7 ANNEX 1 – TUTORIAL: COURSE AUTHORIZING WITH COMPETENCES

This tutorial provides an illustrated walkthrough to create a new course with course material and assignments. To show the functions to create a course, we used a course from the University of Hagen with German learning material. Furthermore, we show how to create competence based learning goals and condition profiles and assigning them to the new course.

### Target Audience

The stakeholders of the Ecosystem are different user groups and communities which will be affected by and will be using the services and possibilities within the system developed and provided during the project. The main Ecosystem related target groups are given by:

- researcher (groups) and experts,
- asset developers,
- gaming companies and developers,
- training providers (educational providers, intermediary organizations), and
- end users (learners) in application scenarios (industrial and institutional sectors) coming from within or (mainly) from outside the project consortium.

While researchers and experts can provide the first important input on Applied Gaming content and knowledge to be imported into the Ecosystem, game and asset developers represent the game development and industrial perspective on Applied Games and provide information and software assets with related material; training providers and learners together embody the educational and learning perspective on Applied Games and will probably most likely not search for assets but may be interested in publications and other media objects.

### Prerequisites

- Recent web browser – Mozilla Firefox, Google Chrome, ... (Microsoft Edge currently not supported)
- EcoSystem Portal account (please send E-Mail to [jmertens@ftk.de](mailto:jmertens@ftk.de))
- EcoSystem Portal URL (Test Environment): <https://www.gamecomponents.eu/>

### Contact

Please contact [\*\*ragesupport@ftk.de\*\*](mailto:ragesupport@ftk.de) for bug reports and support.

## Table of Contents

Login	19
Create a new Course	20
Create course material	26
Create assignments	34
Create a new Competence Framework	40
Use of competences - Create a new learning goal	60
Assigning profiles to the course	67
Use of competences - Create a new condition profil	68
Enroll to the new course	74

### 7.1 Login

Point your web browser to the RAGE EcoSystem Portal URL <https://www.gamecomponents.eu> and click “Login” in the upper right hand corner.

Please enter the RAGE credentials provided (login, password) in the corresponding form fields and press the “Login” button below.

---


EXPLORE LOGIN

---

### Login

UserName

Password

[Forgot your password?](#)

---



RAGE, Realising and Applied Gaming Eco-system, aims to develop, transform and enrich advanced technologies from the leisure games industry into self-contained gaming assets that support game studios at developing applied games easier, faster and more cost-effectively

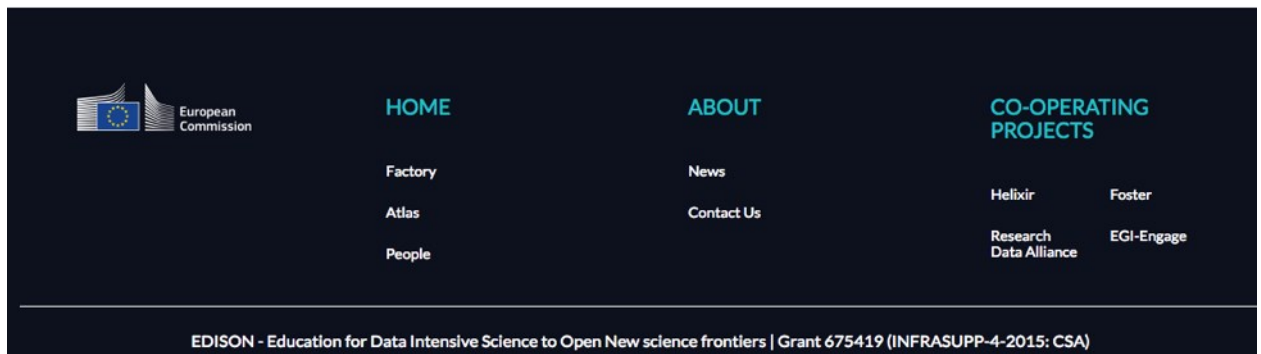


This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 644187

The EcoSystem Portal dashboard should then look similar to the following screenshot.



EXPLORE TEST MYTH IMPORT MOODLE COMPETENCE CONTENT MANAGER ADMIN MY ACCOUNT LOGOUT



You will find a menu bar with the functions **Explore**, to search and browse the Ecosystem, **Import**, to import external data from Bibtex, OAI-PMH, Mendeley and Slideshare into the Repository, **Moodle** to create and manage courses, **Competence** to manage competences and competence profiles, **Content Manager**, to manage your own content, create Assets, Publications, Presentations and Software and assign material to asset collections and to manage taxonomies, **My Account**, to edit your account data, and **Logout**.

This tutorial will concentrate on the creation of a new course and the use of competences for condition profiles and learning goals. We will show you how to create a new course with experimental course material and assignments. Subsequently, we will see how to manage competences. Therefore, we create at first a new competence framework and fill them secondly with new competences. After that we bundle competences from the competence frameworks to build two competence profiles, a learning goal and a condition profile and link both profiles to our course. Finally, we show how to enroll to the new course.


## 7.2 Create a new Course

To create a new course, select "Moodle » *Course Authoring Tool*" from the dashboard menu.



[EXPLORE](#) [TEST MYTH](#) [IMPORT](#) [MOODLE](#) [COMPETENCE](#) [CONTENT MANAGER](#) [ADMIN](#) [MY ACCOUNT](#) [LOGOUT](#)

- Course Manager
- Course Authoring Tool**
- Studien Module Manager



**HOME**

- Factory
- Atlas
- People

**ABOUT**

- News
- Contact Us

**CO-OPERATING PROJECTS**

- Helixir
- Foster
- Research Data Alliance
- EGI-Engage

In the following screen, please select “+ Create a new course”.



- EXPLORE
- IMPORT
- MOODLE**
- COMPETENCE
- CONTENT MANAGER
- ADMIN
- MY ACCOUNT
- LOGOUT

moodle / Course Authoring Tool

## All courses (Not include templates)

[+ Create a new course](#)

Show  entries

ID	Short name	Full name	
7	1870	Informationsvisualisierung im Internet	<a href="#">Backup</a> <a href="#">Edit</a> <a href="#">Delete</a>
6	DBS1	Database systems	<a href="#">Backup</a> <a href="#">Edit</a> <a href="#">Delete</a>

Showing 1 to 2 of 2 entries

Previous **1** Next

In the next step you can decide to use a course template with predefined sections and learning activities. For this walkthrough please choose the template “Computer Science” and click on “Clone”.

moodle / Course Authoring Tool

Create New Course from Template

Create New Course without Template

## Choose a template to clone

Template for computer science course with 1 Topic

Computer science

1873 Daten- und Dokumentenmanagement im Internet

Clone

Cancel

Now enter in the field "Course full name" *Informationsvisualisierung im Internet* and in the field "Course short name" *1870*. Finally click on "Create a new course".

moodle / Course Authoring Tool

## Createn a new Course from template:

### Course full name

Informationsvisualisierung im Internet

### Course short name

1870

### Course category

Computer science


Create a new course


Cancel

After the creation of the new course you get the message *The new course "1870" was created successfully* as in the following screenshot to see. Click then on the button "Edit".

moodle / Course Authoring Tool










## All courses (Not include templates)

 The new course "1870" was created successfully.

 Create a new course

Show  entries



ID	Short name	Full name	
12	1870	Informationsvisualisierung im Internet	 Backup  Edit  Delete
8	01871	Kurs 01871 „Webanwendungen“	 Backup  Edit  Delete
6	DBS1	Database systems	 Backup  Edit  Delete

Showing 1 to 3 of 3 entries

Previous **1** Next



Now you have five tabs to edit the course. In the first tab you can change the *course name* and *category* and enter a *Course summary*. Please Copy & Paste the following description in the field *Course summary*:

*Informationsvisualisierung kann Menschen wesentlich darin unterstützen, den Umfang von Informationskollektionen zu erfassen, deren Beschaffenheit zu verstehen und darin enthaltene relevante Informationen zu erkennen. Angemessene Visualisierungsmethoden für den Einsatz in Benutzungsschnittstellen von Informationssystemen zu finden, gewinnt daher zunehmend an Bedeutung. Der Kurs 1871 führt zunächst in grundlegende Begrifflichkeiten der Informationsvisualisierung ein und kategorisiert deren Techniken. Danach werden die wichtigsten Informationsvisualisierungstechniken und deren grundlegende Methoden und Eigenschaften anhand von Fallbeispielen vorgestellt. Daran schließt sich eine Vorstellung von Basistechnologien an, die bei der Realisierung von Informationsvisualisierungskomponenten für Webanwendungen eine bedeutende Rolle spielen. Dabei hat sich insbesondere die im Kurs 1871 grundlegend vorgestellte "Virtual Reality Modeling Language" (VRML), eine Beschreibungssprache für dreidimensionale Objekte und Szenen, schnell zu einem weitverbreiteten Standard zur Darstellung von Echtzeit-3D-Umgebungen entwickelt. Die Übungen bearbeiten und vertiefen daher gezielt den Entwurf von Informationsvisualisierungsanwendungen und den Umgang mit VRML.*

*Der Kurs 1872 erweitert zunächst das Wissen über Informationsvisualisierungstechniken und deren grundlegende Methoden und Eigenschaften anhand von Fallbeispielen um zusätzliche Kategorien. Auf den Kenntnissen, die im Kurs 1871 erworben wurden, aufbauend wird im Kurs 1872 das Thema VRML weiter vertieft. Hier kommen abschließend insbesondere das External Autoring Interface sowie verwandte VRML-APIs zur Realisierung von integrierten Informationsvisualisierungsarchitekturen im Zusammenwirken mit anderen Anwendungen und Diensten zur Sprache. Die Übungen bearbeiten und vertiefen gezielt weiter den Entwurf von Informationsvisualisierungsanwendungen und den Umgang mit VRML sowie dessen APIs.*

Finally please click on „Save“. The new course is now created. The next section shows you how to create course material.

[EXPLORE](#) [TEST MYTH](#) [IMPORT](#) [MOODLE](#) [COMPETENCE](#) [CONTENT MANAGER](#) [ADMIN](#) [MY ACCOUNT](#) [LOGOUT](#)[moodle](#) / Course Authoring Tool

## Edit course: Informationsvisualisierung im Internet

[Edit General Information](#)[Edit Sections](#)[Edit Activities](#)[Condition Profile](#)[Goal Profile](#)

Course full name

Course short name

Course category

Course summary

File Edit Insert View Format Table Tools

← → **Formats** **B** *I* [List Icons] [List Icons] [List Icons] [List Icons] [List Icons] [List Icons] [List Icons] [List Icons] [List Icons]

[Print] [Eye] [Text] **A** **A** [Smiley]

Informationsvisualisierung kann Menschen wesentlich darin unterstützen, den Umfang von Informationskollektionen zu erfassen, deren Beschaffenheit zu verstehen und darin enthaltene relevante Informationen zu erkennen. Angemessene Visualisierungsmethoden für den Einsatz in Benutzungsschnittstellen von Informationssystemen zu finden, gewinnt daher zunehmend an Bedeutung. Der Kurs 1871 führt zunächst in grundlegende Begrifflichkeiten der Informationsvisualisierung ein und kategorisiert deren Techniken. Danach werden die wichtigsten Informationsvisualisierungstechniken und deren grundlegende Methoden und Eigenschaften anhand von Fallbeispielen vorgestellt. Daran schließt sich eine Vorstellung von Basistechnologien an, die bei der Realisierung von Informationsvisualisierungskomponenten für Webanwendungen eine bedeutende Rolle spielen. Dabei hat sich insbesondere die im Kurs 1871 grundlegend vorgestellte "Virtual Reality Modeling Language" (VRML), eine Beschreibungssprache für dreidimensionale Objekte und Szenen, schnell zu einem weitverbreiteten Standard zur Darstellung von Echtzeit-3D-Umgebungen entwickelt. Die Übungen bearbeiten und vertiefen daher gezielt den Entwurf von Informationsvisualisierungsanwendungen und den Umgang mit VRML.

Der Kurs 1872 erweitert zunächst das Wissen über Informationsvisualisierungstechniken und deren grundlegende Methoden und Eigenschaften anhand von Fallbeispielen um zusätzliche Kategorien. Auf den Kenntnissen, die im Kurs 1871 erworben wurden, aufbauend wird im Kurs 1872 das Thema VRML weiter vertieft. Hier kommen abschließend insbesondere das External Authoring Interface sowie verwandte VRML-APIs zur Realisierung von integrierten Informationsvisualisierungsarchitekturen im Zusammenwirken mit anderen Anwendungen und Diensten zur Sprache. Die Übungen bearbeiten und vertiefen gezielt weiter den Entwurf von Informationsvisualisierungsanwendungen und den Umgang mit VRML sowie dessen APIs.

p Words: 216

[SAVE](#) [CANCEL](#)


### 7.3 Create course material

To fill the new course with learning material, click on the second tab "Edit Sections". Sections are used to bundle learning activities. We need only two ones for course units and for the learning material assignments. First click on "Edit" at the section "General" to rename the first one.

## Edit course: Informationsvisualisierung im Internet

[Edit General Information](#)
[Edit Sections](#)
[Edit Activities](#)
[Condition Profile](#)
[Goal Profile](#)

### All sections of this course

ID	Name	
1	General	 Edit
2	1 January - 7 January	 Edit
3	8 January - 14 January	 Edit
4	15 January - 21 January	 Edit

Now change the “Name” to *Course units*. The field Summary can be left blank. Click on “Save” to accept the changes.

moodle >> Course Authoring Tool >> Edit Sections

13.06.2015  
# 9

































moodle / Course Authoring Tool







### Edit section 1

**Name**

**Summary**

File Edit Insert View Format Table Tools



 Formats
 






























p Words: 0

Change now the second section “1 January – 7 January” in the same way to *Assignments*.

## Edit course: Informationsvisualisierung im Internet

[Edit General Information](#)
[Edit Sections](#)
[Edit Activities](#)
[Condition Profile](#)
[Goal Profile](#)

All sections of this course

ID	Name	
1	Course units	<a href="#">EDIT</a>
2	Assignments	<a href="#">EDIT</a>
3	8 January - 14 January	<a href="#">EDIT</a>
4	15 January - 21 January	<a href="#">EDIT</a>

In the next step we would like to fill the section “Course units” with course material. The creating of assignments are discussed in the next section. Therefor please click on the third tab “Edit Activities” and then on “All activities of section 1 » + New activity”.

## Edit course: Informationsvisualisierung im Internet

[Edit General Information](#)
[Edit Sections](#)
[Edit Activities](#)
[Condition Profile](#)
[Goal Profile](#)

All activities of section 1

[+ New activity](#)

ID	Type of activity	Name
All activities of section 2		
All activities of section 3		
All activities of section 4		

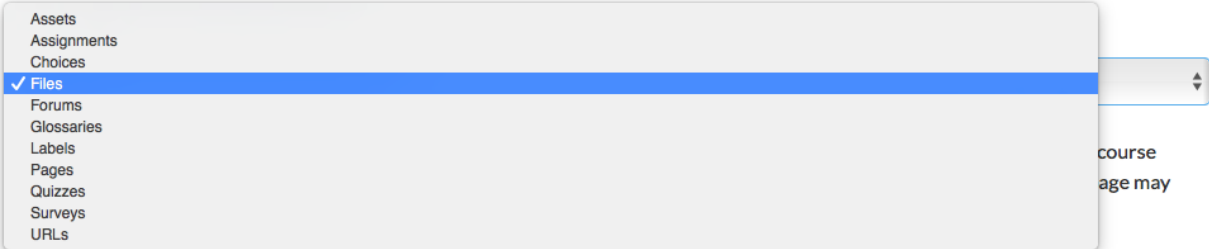
In the next screen we can select the module type for the new activity. For each activity you can add one or more module types, for example learning material or assignments.

## Choose module type

The Assets of Ecosystem

For this course we would like to provide the course material in form of pdfs. Therefore, click on the drop down menu and select the module type "Files".

moodle / Course Authoring Tool



Note that students need to have the appropriate software on their computers in order to open the file.

A file may be used

- \* To share presentations given in class
- \* To include a mini website as a course resource
- \* To provide draft files of certain software programs (eg Photoshop .psd) so students can edit and submit them for assessment

**NEXT** CANCEL

At first please enter *course unit 1* in the field "Name" and the following text in the field "Intro":  
*Dieser Text beinhaltet die erste Kurseinheit des Kurses 1871 „Informationsvisualisierung im Internet I“. Die Kurseinheit motiviert das Thema Informationsvisualisierung und führt in grundlegende Begrifflichkeiten und Eigenschaften der Informationsvisualisierung ein. Dabei stellt sie eine relevante Auswahl der aktuell vorliegenden Ergebnisse der wissenschaftlichen Forschung und Literatur zum Thema Informationsvisualisierung vor. Dabei bauen die Kurstexte dieses Kurses auf Rohertexten von Seminararbeiten auf, die im Rahmen einer Hauptseminarveranstaltung an der Ludwig-Maximilians-Universität in München im SS 2003 über das Buch „Readings in Information Visualization“ von Ben Shneiderman, Stuart K. Card und Jock D. Mackinlay erstellt wurden. Dank für einen Beitrag, der in der vorliegenden Kurseinheit verwendet wurde, gilt somit an dieser Stelle zunächst der damaligen Studentin Ina Müller-Gorman. Dank an Andre Triebel.*  
Finally, click on „Save“.

moodle / Course Authoring Tool

← Back to choose to Type

## Create a new file

Name

Course unit 1

Intro

File Edit Insert View Format Table Tools

Formats B I [List icons] [Link icon] [Image icon]

[Text icons]

Dieser Text beinhaltet die erste Kurseinheit des Kurses 1871 „Informationsvisualisierung im Internet I“. Die Kurseinheit motiviert das Thema Informationsvisualisierung und führt in grundlegende Begrifflichkeiten und Eigenschaften der Informationsvisualisierung ein. Dabei stellt sie eine relevante Auswahl der aktuell vorliegenden Ergebnisse der wissenschaftlichen Forschung und Literatur zum Thema Informationsvisualisierung vor. Dabei bauen die Kurstexte dieses Kurses auf Rohertexten von Seminararbeiten auf, die im Rahmen einer Hauptseminarveranstaltung an der Ludwig-Maximilians-Universität in München im SS 2003 über das Buch „Readings in Information Visualization“ von Ben Shneiderman, Stuart K. Card und Jock D. Mackinlay erstellt wurden. Dank für einen Beitrag, der in der vorliegenden Kurseinheit verwendet wurde, gilt somit an dieser Stelle zunächst der damaligen Studentin Ina Müller-Gorman. Dank an Andre Triebel.

p Words: 116

Save Cancel

The first activity is now created however empty. To upload a file, click on “Edit”.

moodle / Course Authoring Tool

## Edit course: Kurs 01870 „Informationsvisualisierung“

Edit General Information Edit Sections Edit Activities Condition Profile Goal Profile

All activities of section 1

+ New activity

ID	Type of activity	Name	
21	Files	Course unit 1	<span>Edit</span> <span>Delete</span>

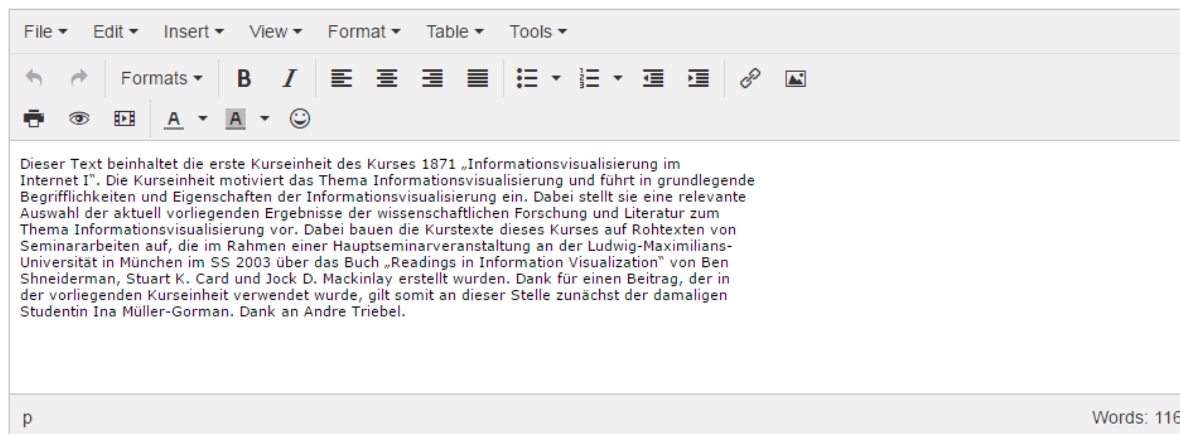
Cancel

Now we can upload on or more files by click on “+ Upload a new file”.

## Edit the file

### Name

### Intro



Dieser Text beinhaltet die erste Kurseinheit des Kurses 1871 „Informationsvisualisierung im Internet I“. Die Kurseinheit motiviert das Thema Informationsvisualisierung und führt in grundlegende Begrifflichkeiten und Eigenschaften der Informationsvisualisierung ein. Dabei stellt sie eine relevante Auswahl der aktuell vorliegenden Ergebnisse der wissenschaftlichen Forschung und Literatur zum Thema Informationsvisualisierung vor. Dabei bauen die Kurstexte dieses Kurses auf Rohertexten von Seminararbeiten auf, die im Rahmen einer Hauptseminarveranstaltung an der Ludwig-Maximilians-Universität in München im SS 2003 über das Buch „Readings in Information Visualization“ von Ben Shneiderman, Stuart K. Card und Jock D. Mackinlay erstellt wurden. Dank für einen Beitrag, der in der vorliegenden Kurseinheit verwendet wurde, gilt somit an dieser Stelle zunächst der damaligen Studentin Ina Müller-Gorman. Dank an Andre Triebel.

p Words: 116

### List of files

Filename	Type	Download
----------	------	----------

On the next window click on “Datei auswählen”

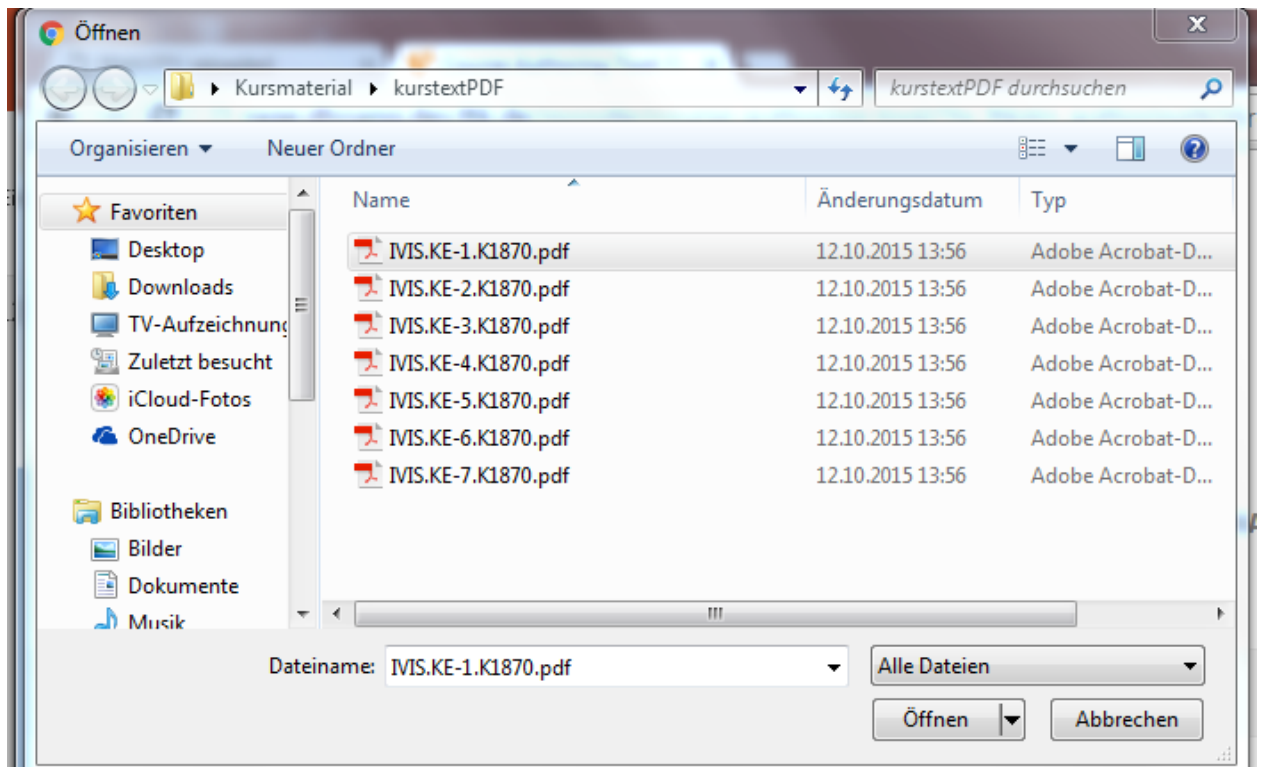
## Upload file as resource

### Choose file to upload

Now we have to choose the file to upload. This manual contains all seven course units of the course 1870. You find them under the folder */kurstextPDF*. The units are named *IVIS.KE- $\{n\}$ .K1870.pdf* in which  $\{n\}$  stands for the unit number from 1 to 7. Please select the first one *IVIS.KE-1.K1870.pdf* and click on “Öffnen”.





To finish the upload click on “Save”.

moodle / Course Authoring Tool

## Upload file as resource

Choose file to upload

IVIS.KE-1.K1870.pdf

Now the uploaded file is in the EP. In the same way you can upload any more files for this activity. In our case we have only one file.

## Edit the file

### Name

Course unit 1

### Intro

File ▾ Edit ▾ Insert ▾ View ▾ Format ▾ Table ▾ Tools ▾

← → Formats ▾ **B** *I* [List icons] [Link icon] [Image icon]

🖨️ 👁️ [Table icon] **A** ▾ **A** ▾ 😊

Dieser Text beinhaltet die erste Kurseinheit des Kurses 1871 „Informationsvisualisierung im Internet I“. Die Kurseinheit motiviert das Thema Informationsvisualisierung und führt in grundlegende Begrifflichkeiten und Eigenschaften der Informationsvisualisierung ein. Dabei stellt sie eine relevante Auswahl der aktuell vorliegenden Ergebnisse der wissenschaftlichen Forschung und Literatur zum Thema Informationsvisualisierung vor. Dabei bauen die Kurstexte dieses Kurses auf Rohtexten von Seminararbeiten auf, die im Rahmen einer Hauptseminarveranstaltung an der Ludwig-Maximilians-Universität in München im SS 2003 über das Buch „Readings in Information Visualization“ von Ben Shneiderman, Stuart K. Card und Jock D. Mackinlay erstellt wurden. Dank für einen Beitrag, der in der vorliegenden Kurseinheit verwendet wurde, gilt somit an dieser Stelle zunächst der damaligen Studentin Ina Müller-Gorman. Dank an Andre Triebel.

p Words: 116

### List of files

[+ Upload a new file](#)

Filename	Type	Download
IMS.KE-1.K1870.pdf	application/pdf	<a href="#">Download</a> <a href="#">Delete</a>

[Save](#) [Cancel](#)

When we go back to the tab “Edit Activities” by click on “Save”, we see an another icon for the activity “Files” which indicate the uploaded pdf.



[EXPLORE](#) [IMPORT](#) [MOODLE](#) [COMPETENCE](#) [CONTENT MANAGER](#) [ADMIN](#) [MY ACCOUNT](#) [LOGOUT](#)

moodle / Course Authoring Tool

## Edit course: Informationsvisualisierung im Internet

[Edit General Information](#) [Edit Sections](#) [Edit Activities](#) [Condition Profile](#) [Goal Profile](#)

All activities of section 1

[+ New activity](#)

ID	Type of activity	Name	
28	Files	Kurseinheit 1: Grundlagen	<a href="#">Edit</a> <a href="#">Delete</a>

The steps to upload the other six course units are analogous to the first one. The titles of the other units are in the following table. The summaries can be led blank.

Course unit	File name	Title

2	IVIS.KE-2.K1870.pdf	Kurseinheit 2: Informationsvisualisierungstechniken I
3	IVIS.KE-3.K1870.pdf	Kurseinheit 3: Informationsvisualisierungstechniken II
4	IVIS.KE-4.K1870.pdf	Kurseinheit 4: Evaluation von Informationsvisualisierungstechniken
5	IVIS.KE-5.K1870.pdf	Kurseinheit 5: Basistechnologie VRML – Teil 1: Grundkonzepte, Animation und Interaktion
6	IVIS.KE-6.K1870.pdf	Kurseinheit 6: IVIS-Architekturen (Technologien und Architekturen II)
7	IVIS.KE-7.K1870.pdf	Kurseinheit 7: Externe Programmierschnittstellen für auf VRML-basierende Visualisierungen

If you have created the other course units similar to the first one you should see the following screen for the section “Course units”.

Edit course: Informationsvisualisierung im Internet

[Edit General Information](#)
[Edit Sections](#)
[Edit Activities](#)
[Condition Profile](#)
[Goal Profile](#)

All activities of section 1

[+ New activity](#)

ID	Type of activity	Name		
28	Files	Kurseinheit 1: Grundlagen	<a href="#">Edit</a>	<a href="#">Delete</a>
35	Files	Kurseinheit 2: Informationsvisualisierungstechniken I	<a href="#">Edit</a>	<a href="#">Delete</a>
36	Files	Kurseinheit 3: Informationsvisualisierungstechniken II	<a href="#">Edit</a>	<a href="#">Delete</a>
37	Files	Kurseinheit 4: Evaluation von Informationsvisualisierungstechniken	<a href="#">Edit</a>	<a href="#">Delete</a>
38	Files	Kurseinheit 5: Basistechnologie VRML – Teil 1: Grundkonzepte, Animation und Interaktion	<a href="#">Edit</a>	<a href="#">Delete</a>
39	Files	Kurseinheit 6: IVIS-Architekturen (Technologien und Architekturen II)	<a href="#">Edit</a>	<a href="#">Delete</a>
40	Files	Kurseinheit 7: Externe Programmierschnittstellen für auf VRML-basierende Visualisierungen	<a href="#">Edit</a>	<a href="#">Delete</a>

## 7.4 Create assignments

Now we start with the creation of assignments for the course 1870. Please go again to the tab “Edit Activities” but now to the section “All activities of section 2”. This section should be containing all assignments. Please click on “+ New activity” to add the first assignment.

## Edit course: Informationsvisualisierung im Internet

[Edit General Information](#)
[Edit Sections](#)
[Edit Activities](#)
[Condition Profile](#)
[Goal Profile](#)

All activities of section 1

All activities of section 2

+ New activity

ID	Type of activity	Name
----	------------------	------

In the next screen we can select again the module type for our new activity. This time we select "Assignments". Then click on "next".

## Choose module type

- Assets
- Assignments
- Choices
- Files
- Forums
- Glossaries
- Labels
- Pages
- Quizzes
- Surveys
- URLs

content. Students can submit work individually or as a member of a group.

When reviewing assignments, teachers can leave feedback comments and upload files, such as marked-up student submissions, documents with comments or spoken audio feedback. Assignments can be graded using a numerical or custom scale or an advanced grading method such as a rubric. Final grades are recorded in the gradebook.

**NEXT** CANCEL

Next please enter in the field "Name" and "Intro" the same text *Submitted assignment for course unit 1*. The other both fields enable to select a start and end date to edit the assignment. In the field "Allow submissions from date" select the current date, in "Due date" the current date plus 7 days. So a learner has one week to edit and submit the assignment. Finally, click on "Save".

[BACK TO CHOOSE TO TYPE](#)

## Create new assignment

**Name**

Submitted assignment for course unit 1

**Allow submissions from date**

01.06.2017

**Due date**

10.06.2017

**Intro**

File Edit Insert View Format Table Tools

Formats B I [List Icons]

Submitted assignment for course unit 1.

Words: 5

[SAVE](#) [CANCEL](#)

Subsequently the EP presents us the new assignment in section 2 though still without content.

## Edit course: Informationsvisualisierung im Internet

[Edit General Information](#) [Edit Sections](#) [Edit Activities](#) [Condition Profile](#) [Goal Profile](#)

**All activities of section 1**

**All activities of section 2**

[+ New activity](#)

ID	Type of activity	Name	
43	Assignments	Submitted assignment for course unit 1	<a href="#">Edit</a> <a href="#">Delete</a>

To add content click on “Edit”. Now we have the possibility to upload a file by clicking on “+ UPLOAD A NEW FILE”.

moodle / Course Authoring Tool

## Edit assignment

**Name****Allow submissions from date****Due date****Intro**

File Edit Insert View Format Table Tools

Formats B I [List Icons]

Submitted assignment for course unit 1.

Words: 5

**Additional files**

Filename	Type	Download
----------	------	----------

SAVE CANCEL

In the next screen click on "Datei auswählen".

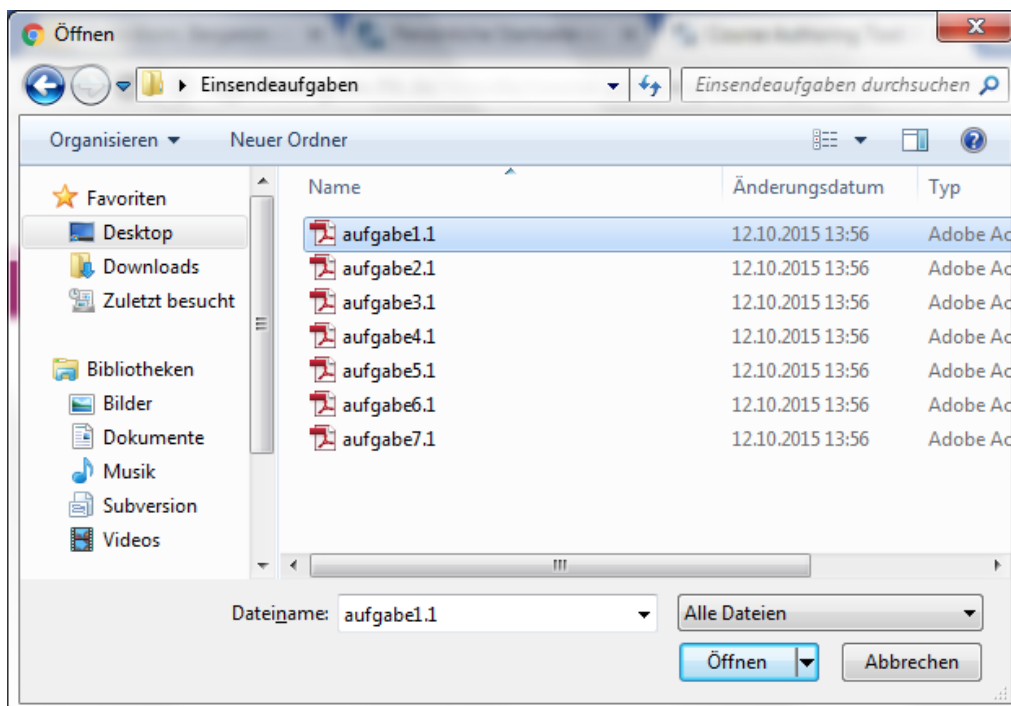
[EXPLORE](#) [IMPORT](#) [MOODLE](#) [COMPETENCE](#) [CONTENT MANAGER](#) [ADMIN](#) [MY ACCOUNT](#) [LOGOUT](#)

moodle / Course Authoring Tool

## Upload file to assignment

**Choose file to upload** Keine ausgewählt 

Like the course units we have to choose again the file to upload. This manual contains all assignments of the course 1870. You find them in the folder */Einsendeaufgaben*. The assignments are named *aufgabe.{n}.1.pdf* in which {n} stands for the unit number from 1 to 7. Please select the first one *aufgabe1.1.pdf* and click on "Öffnen".



In the next screen click on “Save” to upload the file to the EP.



## Upload file to assignment

Choose file to upload

aufgabe1.1.pdf

After that you see the first assignment including the uploaded file.





moodle / Course Authoring Tool

## Edit the assignment

### Name

Submitted assignment for course unit 1

### Allow submissions from date

03.10.2016

### Due date

17.10.2016

### Intro

File ▾ Edit ▾ Insert ▾ View ▾ Format ▾ Table ▾ Tools ▾

← → Formats ▾ **B** *I* [List icons] [Link icon] [Image icon]

[Print icon] [Eye icon] [Table icon] A ▾ A ▾ [Smiley icon]

Submitted assignment for course unit 1

p Words: 5

### Additional files

[+ Upload a new file](#)

Filename	Type	Download
aufgabe1.1.pdf	application/pdf	<a href="#">Download</a> <a href="#">Delete</a>

[Save](#) [Cancel](#)

When we go back to tab “Edit Activities” by click on “Save” we can add the other assignments. The steps to create and upload the files for the other six ones are analogous to the first one. The following screenshots shows all uploaded files for the section “Assignments”.

moodle / Course Authoring Tool

Edit course: Informationsvisualisierung im Internet

[Edit General Information](#)
[Edit Sections](#)
[Edit Activities](#)
[Condition Profile](#)
[Goal Profile](#)

All activities of section 1

All activities of section 2

+ New activity

ID	Type of activity	Name	Edit	Delete
43	Assignments	Submitted assignment for course unit 1		
44	Assignments	Submitted assignment for course unit 2		
45	Assignments	Submitted assignment for course unit 3		
46	Assignments	Submitted assignment for course unit 4		
47	Assignments	Submitted assignment for course unit 5		
48	Assignments	Submitted assignment for course unit 6		
49	Assignments	Submitted assignment for course unit 7		

Now we have finished to create a new course and add learning material and assignments. The next step is to add competence information to the course.

## 7.5 Create a new Competence Framework

To be able to use competences we must first create them. To do this please click on the menu "COMPETENCE»Competence Manager". The Competence Manager managed competences within Competence frameworks. A framework can have on or more sub regions to bundle competences, for example thematically. Now we would like to show how to create a new framework. First step is to click on "+ NEW COMPETENCE FRAMEWORK".



Competence / Competence Manager






Competence Manager

Profile Manager

Competence Tool

## Competence frameworks

+ NEW COMPETENCE FRAMEWORK

- ▶  EDISION.Competences
- ▶  e-CF.The European e-Competence Framework
- ▶  RAGE.Competences
- ▶  FEU.COMPUTER SCIENCE
- ▶  e-CFnew.The European e-Competence Framework

Details

-  Competence framework
-  Competence collection
-  Competence collection (which can not have sub-collection)
-  Competence

Now enter in the field "Identifier" *FEU*, "Name" *COMPUTER SCIENCE* and for the "Description" *Collection of competences for the distance university at Hagen in the area of computer science*. Finally click on "Create new".



EXPLORE IMPORT MOODLE **COMPETENCE** CONTENT MANAGER ADMIN MY ACCOUNT LOGOUT

Competence / Competence Manager

## New Competence Framework

Identifier (required)

FEU

Name (required)

COMPUTER SCIENCE

Description

Collection of competences for the distance university at Hagen in the area of computer science.

Create new

Cancel

Now we see the new competence framework *FEU* in the start screen of the Competence Manager. On the right site, we have a menu with the framework details.







EXPLORE IMPORT MOODLE **COMPETENCE** CONTENT MANAGER ADMIN MY ACCOUNT LOGOUT

Competence / Competence Manager

✔ The new root collection was created successfully.

## Competence frameworks

+ New competence framework

- ▶  EDISION.Competences
- ▶  e-CF.The European e-Competence Framework
- ▶  RAGE.Competences
- ▶  **FEU.COMPUTER SCIENCE**

### Details

#### Collection

**Identifier:** FEU

**Name:** COMPUTER SCIENCE

**Description:** Collection of competences for the distance university at Hagen in the area of computer science.

To subdivide the new framework into different areas right click on the framework and select "New collection". If you want it is equally possible to create new competence directly under the framework without additional collections but for this case, we would like to subdivide the new framework.











- EXPLORE
- IMPORT
- MOODLE
- COMPETENCE**
- CONTENT MANAGER
- ADMIN
- MY ACCOUNT
- LOGOUT

Competence / Competence Manager

✓ The new root collection was created successfully.

## Competence frameworks

+ New competence framework

- ▶  EDISION.Competences
- ▶  e-CF.The European e-Competence Framework
- ▶  RAGE.Competences
- ▶  **FEU.COMPUTER SCIENCE**
  -  New collection
  -  Edit collection
  -  Add a new competence scope
  -  Delete

### Details

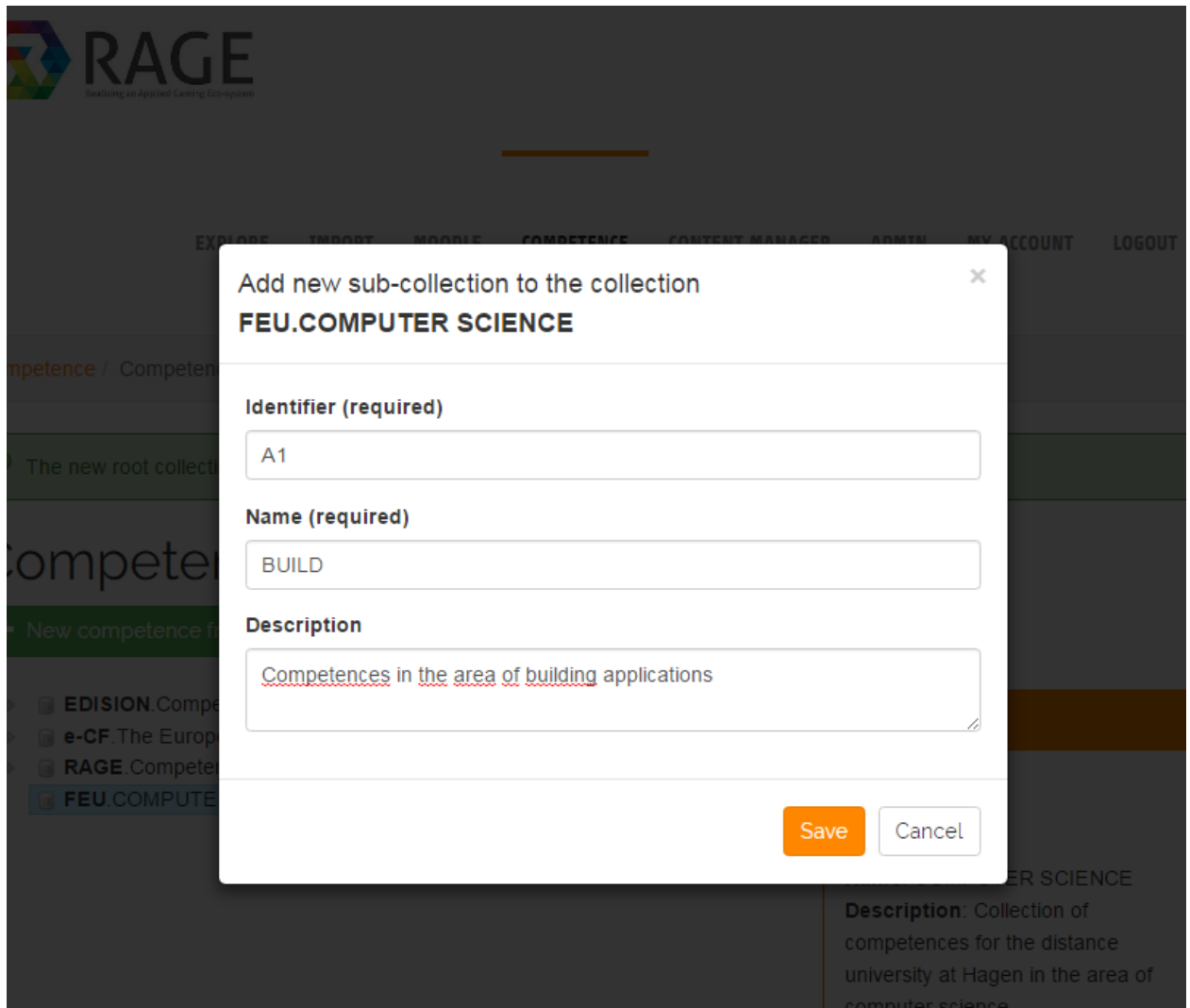
#### Collection

**Identifier:** FEU

**Name:** COMPUTER SCIENCE

**Description:** Collection of competences for the distance university at Hagen in the area of computer science.

In the next screen enter the “Identifier” *A1*, the “Name” *BUILD* and for the “Description” *Competences in the area of building applications*. Finally save these information with a click on “Save”.



The new collection “A1. BUILD” are shown in the following screenshot within our new framework *FEU*. With a left mouse click we see, like by frameworks, on the right site detailed informations about the collection.



- EXPLORE
- IMPORT
- MOODLE
- COMPETENCE
- CONTENT MANAGER
- ADMIN
- MY ACCOUNT
- LOGOUT

Competence / Competence Manager

✓ The new root collection was created successfully.

## Competence frameworks

The new collection was inserted successfully

+ New competence framework

- ▶ EDISION.Competences
- ▶ e-CF.The European e-Competence Framework
- ▶ RAGE.Competences
- ▶ FEU.COMPUTER SCIENCE
  - A1.BUILD

### Details

#### Collection

**Identifier:** A1

**Name:** BUILD

**Description:** Competences in the area of building applications

Now we create a new competence within the collection "A1.BUILD". With a right mouse click on the collection "A1.BUILD" we select "Add a new competence scope".







✔ The new root collection was created successfully.





## Competence frameworks

The new collection was inserted successfully

+ New competence framework

- ▶  EDISION.Competences
- ▶  e-CF.The European e-Competence Framework
- ▶  RAGE.Competences
- ▶  FEU.COMPUTER SCIENCE

A1.BUILD

-  New collection
-  Edit collection
-  Add a new competence scope
-  Delete

Details

### Collection

**Identifier:** A1

**Name:** BUILD

**Description:** Competences in the area of building applications

 Competence framework

Competences within the competence manager are named competence scopes. The reason is, that they are distinguished normally of the competences which are practically in use, for example as a part of a learning goal for a course. Competence scope defines the “maximum competence” and specifies a fixed pool of available **Proficiency Levels (PLs)**, **Skills and Knowledge Examples (SKEs)**. Through the possibility to select individual SKEs from a competence scope, there are theoretically endless possibilities to create a concrete Competence from one competence scope. To avoid here misunderstandings, the different names.

As “Identifier” for the new competence scope enter *A.1*, for the “Name” *Systems Engineering* and as “Description” *This competence scope ...* Click on “Save” to back up the informations. Besides this general informations we have a four more tabs to add optional skills, knowledges, levels and categories. In the next step we would like to add some skills to the new competence scope. Therefore please click on the second tab “Edit skills”.



- EXPLORE
- IMPORT
- MOODLE
- COMPETENCE
- CONTENT MANAGER
- ADMIN
- MY ACCOUNT
- LOGOUT

Competence / Competence Manager

## Edit Competence-scope

Edit General Information

Edit skills

Edit knowledge

Edit levels

Assign Categories

### Identifier (required)

A1.1

### Name (required)

Systems Engineering

### Description

This competence scope ...

Save

Cancel

On the next screen click on "+ Create a new skill".



[EXPLORE](#) [IMPORT](#) [MOODLE](#) [COMPETENCE](#) [CONTENT MANAGER](#) [ADMIN](#) [MY ACCOUNT](#) [LOGOUT](#)

[Competence](#) / Competence Manager

## Edit Competence-scope

[Edit General Information](#) [Edit skills](#) [Edit knowledge](#) [Edit levels](#) [Assign Categories](#)

[+ Create a new skill](#)

ID	Identifier	Description
----	------------	-------------

[Back](#)

Enter *S1* in the field “Identifier” and *use data models* in the “Description” field. Finally click on “Save”.



[EXPLORE](#) [IMPORT](#) [MOODLE](#) [COMPETENCE](#) [CONTENT MANAGER](#) [ADMIN](#) [MY ACCOUNT](#) [LOGOUT](#)

[Competence](#) / Competence Manager

## New Skill

**Identifier (required)**

**Description**

[Save](#) [Cancel](#)


The new skill now listed under the skills-tab. Please click in the next step on the third tab “Edit knowledge”.



[EXPLORE](#) [IMPORT](#) [MOODLE](#) [COMPETENCE](#) [CONTENT MANAGER](#) [ADMIN](#) [MY ACCOUNT](#) [LOGOUT](#)

[Competence](#) / Competence Manager

## Edit Competence-scope

 This skill was updated successfully

[Edit General Information](#)

[Edit skills](#)

[Edit knowledge](#)

[Edit levels](#)

[Assign Categories](#)

[+ Create a new skill](#)

ID	Identifier	Description	
113	S1	use data models	<a href="#">Edit</a> <a href="#">Delete</a>

The way to create new knowledge is identical to the creating of skills. So we click again on “+ Create a new knowledge”.



- EXPLORE
- IMPORT
- MOODLE
- COMPETENCE
- CONTENT MANAGER
- ADMIN
- MY ACCOUNT
- LOGOUT

Competence / Competence Manager

## Edit Competence-scope

✔ A new was created successfully

[Edit General Information](#) [Edit skills](#) [Edit knowledge](#) [Edit levels](#) [Assign Categories](#)

+ Create a new knowledge

ID	Identifier	Description
----	------------	-------------

[Back](#)

Then we enter again an "Identifier", here *K1*, and a "Description" *programming languages*. Store the informations by a click on "Save".



EXPLORE IMPORT MOODLE **COMPETENCE** CONTENT MANAGER ADMIN MY ACCOUNT LOGOUT

Competence / Competence Manager

## New Knowledge

Identifier (required)

Description

Under the “Edit knowledge” tab we see now the created knowledge. Subsequent click on the next tab “Edit levels” to add proficiency levels to the new competence.



- EXPLORE
- IMPORT
- MOODLE
- COMPETENCE
- CONTENT MANAGER
- ADMIN
- MY ACCOUNT
- LOGOUT

Competence / Competence Manager

## Edit Competence-scope

✔ A new knowledge was created successfully

[Edit General Information](#) [Edit skills](#) [Edit knowledge](#) [Edit levels](#) [Assign Categories](#)

+ Create a new knowledge

ID	Identifier	Description	
129	K1	programming languages	<a href="#">Edit</a> <a href="#">Delete</a>

[Back](#)

Now please click on “+ Create a new Proficiency Level”.



- EXPLORE
- IMPORT
- MOODLE
- COMPETENCE**
- CONTENT MANAGER
- ADMIN
- MY ACCOUNT
- LOGOUT

Competence / Competence Manager

## Edit Competence-scope

- Edit General Information
- Edit skills
- Edit knowledge
- Edit levels**
- Assign Categories

[+ Create a new Proficiency Level](#)

ID	Level	Description
<div style="border: 1px solid #ccc; display: inline-block; padding: 2px 10px; margin-bottom: 10px;">Back</div>		

Each competence-scope can have at most five levels. Level one represents the least qualification, level five the highest. Please select in the drop-down menu “Level (required)” *Proficiency Level 1*.





- EXPLORE
- IMPORT
- MOODLE
- COMPETENCE
- CONTENT MANAGER
- ADMIN
- MY ACCOUNT
- LOGOUT

Competence / Competence Manager

## New Proficiency Level

Level (required)

Proficiency Level 1	▼
<b>Proficiency Level 1</b>	
Proficiency Level 2	
Proficiency Level 3	
Proficiency Level 4	
Proficiency Level 5	

In the "Description" field enter the following text:  
*Ensures interoperability of the system components. Exploits wide ranging specialist knowledge to create a complete system that will satisfy the system constraints and meet the customer's expectations*

Finally click on "Save" to add the new level to the competence scope.



EXPLORE IMPORT MOODLE **COMPETENCE** CONTENT MANAGER ADMIN MY ACCOUNT LOGOUT

Competence / Competence Manager

## New Proficiency Level

**Level (required)**

Proficiency Level 1

**Description**

Ensures interoperability of the system components. Exploits wide ranging specialist knowledge to create a complete system that will satisfy the system constraints and meet the customer's expectations

Save

Cancel

The new level now listed under the “Edit levels” tab. In the same way you can add more levels. The last step demonstrates how to assign categories to the new competence scope. For this purpose click on the tab “Assign Categories”.



- EXPLORE
- IMPORT
- MOODLE
- COMPETENCE**
- CONTENT MANAGER
- ADMIN
- MY ACCOUNT
- LOGOUT

Competence / Competence Manager

## Edit Competence-scope

✔ A new PCDM-Proficiency-Level was created successfully

- Edit General Information
- Edit skills
- Edit knowledge
- Edit levels**
- Assign Categories

+ Create a new Proficiency Level

ID	Level	Description	
58	1	Ensures interoperability of the system components. Exploits wide ranging specialist knowledge to create a complete system that will satisfy the system constraints and meet the customer's expectations	<a href="#">Edit</a> <a href="#">Delete</a>

The assignment with categories serves to add semantic informations to competence scopes. To link categories we must first select a taxonomy by click on the drop down menu as in the following screenshot to see. Select then the taxonomy "ACM 2012" which contains terms for the area computer science.



## Edit Competence-scope

[Edit General Information](#) [Edit skills](#) [Edit knowledge](#) [Edit levels](#) [Assign Categories](#)


























ACM 2012

RAGE  
TU Darmstadt  
ACM 2012

- Software and its engineering
- Hardware
- Computer systems organization
- Applied computing
- Computing methodologies
- Theory of computation
- Social and professional topics

After selecting the taxonomy the EP lists the terms in form of a poly-hierarchical tree. Please select now the two terms “Software and its engineering » Software development techniques” and “Software and its engineering»Software development process management»Software developments methods”. Finally click on “Assign Categories” so save the changes.

ACM 2012







- ▶  Proper nouns: People, technologies and companies
- ▶  Software and its engineering
  - ▶  Software creation and management
    - ▶  Collaboration in software development
    - ▶  Software post-development issues
    - ▶  Software verification and validation
    - ▶  Software development techniques
    - ▶  Software development process management
      - ▶  Risk management
      - ▶  Software development methods
    - ▶  Designing software
  - ▶  Software notations and tools
  - ▶  Software organization and properties
- ▶  Hardware
- ▶  Computer systems organization
- ▶  Applied computing
- ▶  Computing methodologies
- ▶  Theory of computation
- ▶  Social and professional topics
- ▶  Human-centered computing
- ▶  Networks
- ▶  Security and privacy
- ▶  Information systems
- ▶  Mathematics of computing
- ▶  General and reference

[Assign Categories](#)[Back](#)

The new competence scope is now created. By click on it at the start screen of the competence manager you can see in the right menu the details of the new competence scope *Systems Engineering*. In the following screenshot we see, for example, the added skills. With a click on “Knowledge Examples”, “Proficiency Levels” or “Categories” you can see the other informations. In the same way we can fill bit by bit the new competence framework with competence scopes.

## Competence frameworks

+ New competence framework

- ▶  EDISION.Competences
- ▶  e-CF.The European e-Competence Framework
- ▶  RAGE.Competences
- ▲  FEU.COMPUTER SCIENCE
  - ▲  A1.BUILD
    -  A1.1.Systems Engineering

### Details

#### Competence scope

**Identifier:** A1.1

**Name:** Systems Engineering

**Description:** This competence scope ...

#### Skills Examples:

**S1:** use data models

**S2:** use ...

**S3:** use ...

#### Knowledge Examples:

#### Proficiency Levels:

#### Categories:

### 7.6 Use of competences - Create a new learning goal

In the last section we have seen how to create competence scopes which defines the “maximum competence” and specifies a fixed pool of available **Proficiency Levels, Skills and Knowledge Examples**. Now we would like to see how to use competences to define a new learning goal for our test course 1870. Learning goals always consist of one or more bundled competences. To create a new learning goal please click on “COMPETENCE»Profile Manager”.



EXPLORE TEST MYTH IMPORT MOODLE **COMPETENCE** CONTENT MANAGER ADMIN MY ACCOUNT LOGOUT

- Competence Manager
- Profile Manager
- Competence Tool

The next screen shows all existing profiles. Next click on “+ Create a new profile”.



EXPLORE IMPORT MOODLE **COMPETENCE** CONTENT MANAGER ADMIN MY ACCOUNT LOGOUT

Competence / Profile Manager

## All Profiles

[+ Create a new profile](#)

Identifier	Name	Author	Description	
cp1873	competence_profile_1873	Minh Duc Hoang	This profile is for ...	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Delete</a>
cp_sdb	cp_software_developer_beginner	Benjamin Wallenborn	This profile is for ...	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Delete</a>
saa	software_architect_advanced	Benjamin Wallenborn	This profile is for ...	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Delete</a>



RAGE, Realising an Applied Gaming Eco-system, aims to develop, transform and enrich advanced technologies from the leisure games industry into self-contained gaming assets that support game studios at developing applied games easier, faster and more cost-effectively



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 644187

As “Identifier” please enter *lg1870*, for the “Name” *learning\_goal\_1870*, as “Author”, if you want, your name and a “Description” *This is the learning goal for the course 1870*. To create the new learning goal click on “Save”.



Competence / Profile Manager

## New CompetenceProfile

Identifier (required)

lg1870

Name (required)

learning\_goal\_1870

Author

Benjamin Wallenborn

Description

This is the learning goal for the course 1870

Save Cancel



RAGE. Realising an Applied Gaming Eco-system, aims to develop, transform and enrich advanced technologies from the leisure games industry into self-contained gaming assets that support game studios at developing applied games easier, faster and more cost-effectively




This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 644187


In the list of all profiles we see now our new learning goal *learning\_goal\_1870*. Next we have to fill it with competences from the competence manager. Therefore, click on "Edit".



## All Profiles

 A new profile was created.

 Create a new profile

Identifier	Name	Author	Description	
cp1873	competence_profile_1873	Minh Duc Hoang	This profile is for ...	 Show  Edit  Delete
cp_sdb	cp_software_developer_beginner	Benjamin Wallenborn	This profile is for ...	 Show  Edit  Delete
saa	software_architect_advanced	Benjamin Wallenborn	This profile is for ...	 Show  Edit  Delete
lg1870	learning_goal_1870	Benjamin Wallenborn	This is the learning goal for the course 1870	 Show  Edit  Delete



RAGE, Realising an Applied Gaming Eco-system, aims to develop, transform and enrich advanced technologies from the leisure games industry into self-contained gaming assets that support game studios at developing applied games easier, faster and more cost-effectively



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 644187

The new profile is still empty. First you have to set the competence framework from which you would like to receive the competences. Because it will be very protracted to create a lot of new competence scopes will work in the following steps with a ready to use framework, the European e-Competence Framework (e-CF). The e-CF contains 30 competence scopes for the domain of *Information and Communication Technology (ICT)*. To use the e-CF please select “e-CF. The European e-Competence Framework” from the drop down menu on the right side. Then click on “Edit list of competences”.



Competence / Profile Manager

## Edit Profile

Edit General Information

Edit list of competences

Edit list of competences

Select Competence-Framework : e-CF.The European e-Competence Framework

ID	Identifier	Competence
----	------------	------------

Back



RAGE, Realising an Applied Gaming Eco-system, aims to develop, transform and enrich advanced technologies from the leisure games industry into self-contained gaming assets that support game studios at developing applied games easier, faster and more cost-effectively








































This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 644187

The next screen shows all competence scopes of the e-CF. To define the first competence open the first collection "A.Plan". Here we have nine different competence scopes from A.1 to A.9. Next open A.6.Application Design. You can now see the "Description" and all available "Skills", "Knowledges" and "Proficiency Levels" of this competence scope. Please select the following:

1. "Description"
2. "Skills Examples": S2 and S5
3. "Knowledge Examples": K4 and K6
4. "Proficiency Levels": Proficiency Level2

## Choose competences for profile **learning\_goal\_1870**

- 4  **e-CF**.The European e-Competence Framework
  - 4  **A.PLAN**
    - ▶  **A.1**.IS and Business Strategy Alignment
    - ▶  **A.2**.Service Level Management
    - ▶  **A.3**.Business Plan Development
    - ▶  **A.4**.Product/ Service Planning
    - ▶  **A.5**.Architecture Design
    - 4  **A.6**.Application Design
      -  **Description:** Analyses, specifies, updates and makes available a model to implement applications in accordance with IS policy and user/customer needs. Selects appropriate technical options for application design, optimising the balance between cost and quality. Designs
      - 4  Skills Examples
        -  **S1:** identify customers, users and stakeholders
        -  **S2:** collect, formalise and validate functional and no-functional requirements
        -  **S3:** apply estimation models and data to evaluate costs of different software lifecycle phases
        -  **S4:** evaluate the use of prototypes to support requirements validation
        -  **S5:** design, organise and monitor the overall plan for the design of application
        -  **S6:** design functional specification starting from defined requirements
        -  **S7:** evaluate the suitability of different application development methods for the current scenario
        -  **S8:** establish systematic and frequent communication with customers, users and stakeholders
        -  **S9:** ensure that controls & functionality are built in to the design
      - 4  Knowledge Examples
        -  **K1:** requirements modelling and need analysis techniques
        -  **K2:** software developments methods and their rationale (e.g. prototyping, agile methods, reverse engineering, etc.)
        -  **K3:** metrics related to application development
        -  **K4:** user interface design principles
        -  **K5:** languages for formalising functional specification
        -  **K6:** existing applications and related architecture
        -  **K7:** DBMS, Data Warehouse, DSS... etc
        -  **K8:** mobile technologies
        -  **K9:** threat modelling techniques
      - 4  Proficiency Levels
        -  **Proficiency Level 1:** Contributes to the design and general functional specification and interfaces
        -  **Proficiency Level 2:** Organises the overall planning of the design of the application.
        -  **Proficiency Level 3:** Accounts for own and others actions in ensuring that the application is correctly integrated within a complex environment and complies with user/customer needs.
    - ▶  **A.7**.Technology Trend Monitoring
    - ▶  **A.8**.Sustainable Development
    - ▶  **A.9**.Innovating
  - 4  **B.BUILD**

- Root or sub-collection
- Atomic collection
- Competence scope
- Description of competence
- List of skills
- Skill
- List of knowledge
- Knowledge
- List of proficiency levels
- Proficiency levels

Then scroll down to the end of the page and click on "Save".

- Skills Examples
      - S1: identify customers, users and stakeholders
      - S2: collect, formalise and validate functional and no-functional requirements
      - S3: apply estimation models and data to evaluate costs of different software lifecycle phases
      - S4: evaluate the use of prototypes to support requirements validation
      - S5: design, organise and monitor the overall plan for the design of application
      - S6: design functional specification starting from defined requirements
      - S7: evaluate the suitability of different application development methods for the current scenario
      - S8: establish systematic and frequent communication with customers, users and stakeholders
      - S9: ensure that controls & functionality are built in to the design
    - Knowledge Examples
      - K1: requirements modelling and need analysis techniques
      - K2: software developments methods and their rationale (e.g. prototyping, agile methods, reverse engineering, etc.)
      - K3: metrics related to application development
      - K4: user interface design principles
      - K5: languages for formalising functional specification
      - K6: existing applications and related architecture
      - K7: DBMS, Data Warehouse, DSS... etc
      - K8: mobile technologies
      - K9: threat modelling techniques
  - A.7. Technology Trend Monitoring
  - A.8. Sustainable Development
  - A.9. Innovating
  - B. BUILD
  - C. RUN
  - D. ENABLE
  - E. MANAGE

List of proficiency levels

---

Proficiency levels

SAVE
BACK

The next screen shows now the new profile with our first competence “Application Design”. To fill the profile with more competences click again on “Edit list of competences” and select more competences with desired Skills, Knowledges and Levels.

Competence / Profile Manager

## Edit Profile

Edit General Information
Edit list of competences

Edit list of competences
Select Competence-Framework : e-CF.The European e-Competence Framework

ID	Identifier	Competence
66	A.6	<p><b>Name:</b> Application Design</p> <p><b>Description:</b> Analyses, specifies, updates and makes available a model to implement applications in accordance with IS policy and user/customer needs. Selects appropriate technical options for application design, optimising the balance between cost and quality. Designs</p> <div style="margin-top: 10px;"> <div style="background-color: #f0f0f0; padding: 5px; margin-bottom: 5px;">Skills Examples</div> <div style="background-color: #f0f0f0; padding: 5px; margin-bottom: 5px;">Knowledge Examples</div> <div style="background-color: #f0f0f0; padding: 5px;">Proficiency Levels</div> </div> <p><b>Categories:</b></p>

For this manual only one more competence will be enough. Please select the competence “B.1 Application Development” with “Skills”, “Knowledges” and one or more “Levels” your choice. Again scroll down to the end of the page and click on “Save”-The next screen shows the profile

with the second competence Application Development.

[Competence](#) / Profile Manager

## Edit Profile

[Edit General Information](#)

[Edit list of competences](#)

[Edit list of competences](#)

Select Competence-Framework : e-CF.The European e-Competence Framework

**ID Identifier Competence**

66 A.6 **Name:** Application Design

**Description:** Analyses, specifies, updates and makes available a model to implement applications in accordance with IS policy and user/customer needs. Selects appropriate technical options for application design, optimising the balance between cost and quality. Designs

Skills Examples

Knowledge Examples

Proficiency Levels

**Categories:**

67 B.1 **Name:** Application Development

**Description:** Interprets the application design to develop a suitable application in accordance with customer needs. Adapts existing solutions by e.g. porting an application to another operating system. Codes, debugs, tests and documents and communicates product develop

### 7.7 Assigning profiles to the course

Because we have now created a learning goal for our course 1870, the next step is to assign them to the course. Therefore we have to go to "Moodle » Course Authoring Tool". Then click on "Edit" behind the course 1870.

moodle / Course Authoring Tool

Course Manager

Course Authoring Tool

Studien Module Manager

## All courses (not including ter

[+ CREATE A NEW COURSE](#)

Show  entries

ID	Short name	Full name	
16	adfa	afadf	<a href="#">BACKUP</a> <a href="#">EDIT</a> <a href="#">DELETE</a>
12	DBS2	Database systems 2	<a href="#">BACKUP</a> <a href="#">EDIT</a> <a href="#">DELETE</a>
11	EQA	EDISON QA Course	<a href="#">BACKUP</a> <a href="#">EDIT</a> <a href="#">DELETE</a>
8	1870	Informationsvisualisierung im Internet	<a href="#">BACKUP</a> <a href="#">EDIT</a> <a href="#">DELETE</a>
6	DBS1	Database systems	<a href="#">BACKUP</a> <a href="#">EDIT</a> <a href="#">DELETE</a>

Showing 1 to 5 of 5 entries

To assign a learning goal to the course click on the tab “Goal Profile”. With a click on the drop down menu “Choose profile” we see all available profiles. Please select our recently created profile *learning\_goal\_1870*. Save the assignment with a click on “Save”.



moodle / Course Authoring Tool

### Edit course: Informationsvisualisierung im Internet

[Edit General Information](#) [Edit Sections](#) [Edit Activities](#) [Condition Profile](#) [Goal Profile](#)

Choose profile:

[Save](#) [Cancel](#)

## 7.8 Use of competences - Create a new condition profil

After we have created and assign a learning goal to our course, we will do it in the same way for a new condition profile. To create a new learning goal please click again on “COMPETENCE»Profile Manager”.



EXPLORE TEST MYTH IMPORT MOODLE **COMPETENCE** CONTENT MANAGER ADMIN MY ACCOUNT LOGOUT

- Competence Manager
- Profile Manager**
- Competence Tool Profile Manager

Next click on “+ Create a new profile”.



EXPLORE IMPORT MOODLE **COMPETENCE** CONTENT MANAGER ADMIN MY ACCOUNT LOGOUT

Competence / Profile Manager

## All Profiles

[+ Create a new profile](#)

Identifier	Name	Author	Description	
cp1873	competence_profile_1873	Minh Duc Hoang	This profile is for ...	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Delete</a>
cp_sdb	cp_software_developer_beginner	Benjamin Wallenborn	This profile is for ...	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Delete</a>
saa	software_architect_advanced	Benjamin Wallenborn	This profile is for ...	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Delete</a>



RAGE, Realising an Applied Gaming Eco-system, aims to develop, transform and enrich advanced technologies from the leisure games industry into self-contained gaming assets that support game studios at developing applied games easier, faster and more cost-effectively



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 644187

As “Identifier” please enter cp1870, for the “Name” condition\_profile\_1870, as “Author”, if you want, again your name and a “Description” *This is the condition profile or the course 1870.* To create the new condition profile click on “Save”.

## New CompetenceProfile

**Identifier (required)**

cp1870

**Name (required)**

condition\_profile\_1870

**Author**

Benjamin Wallenborn

**Description**

This is the condition profile for the course 1870

[Save](#) [Cancel](#)

In the list of all profiles we see now our new *condition\_profile\_1870*. Next we have to fill it with competences from the competence manager. Therefore, click on “Edit”.

## All Profiles

 A new profile was created.

[+ Create a new profile](#)

Identifier	Name	Author	Description	
cp1873	competence_profile_1873	Minh Duc Hoang	This profile is for ...	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Delete</a>
cp_sdb	cp_software_developer_beginner	Benjamin Wallenborn	This profile is for ...	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Delete</a>
saa	software_architect_advanced	Benjamin Wallenborn	This profile is for ...	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Delete</a>
lg1870	learning_goal_1870	Benjamin Wallenborn	This is the learning goal for the course 1870	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Delete</a>
cp1870	condition_profile_1870	Benjamin Wallenborn	This is the condition profile for the course 1870	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Delete</a>

Select again *e-CF.The European e-Competence Framework* as source for the competences and click on “Edit list of competences”.





Competence / Profile Manager

## Edit Profile

Edit General Information

Edit list of competences

Edit list of competences

Select Competence-Framework : e-CF.The European e-Competence Framework

ID	Identifier	Competence
----	------------	------------

Back



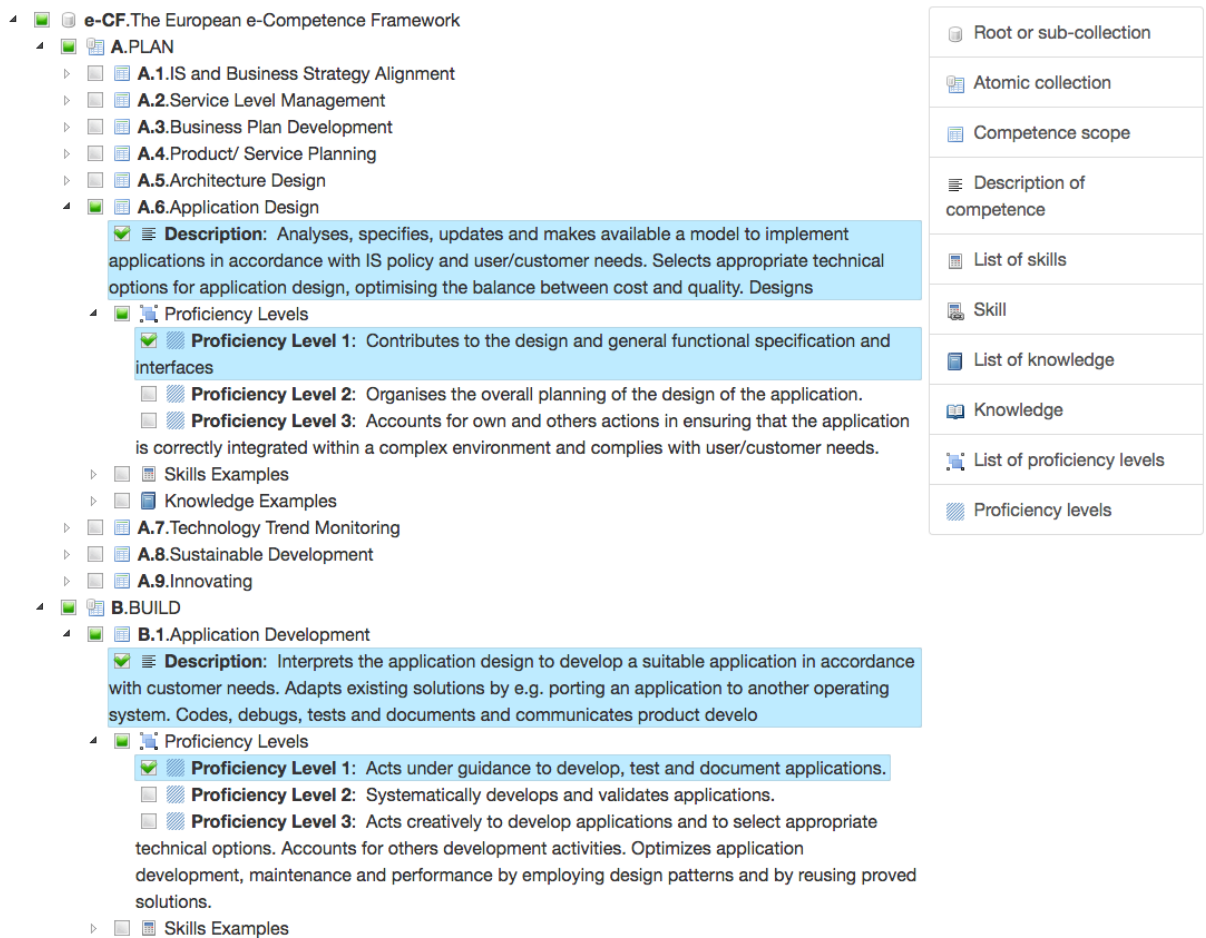
RAGE, Realising an Applied Gaming Eco-system, aims to develop, transform and enrich advanced technologies from the leisure games industry into self-contained gaming assets that support game studios at developing applied games easier, faster and more cost-effectively



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 644187

Now please select two competences: *A.6.Application Design with Level 1* and *B.1.Application Development also with Level 1*.

## Choose competences for profile **condition\_profile\_1870**




e-CF. The European e-Competence Framework

- A.PLAN
  - A.1.IS and Business Strategy Alignment
  - A.2.Service Level Management
  - A.3.Business Plan Development
  - A.4.Product/ Service Planning
  - A.5.Architecture Design
  - A.6.Application Design
    - Description:** Analyses, specifies, updates and makes available a model to implement applications in accordance with IS policy and user/customer needs. Selects appropriate technical options for application design, optimising the balance between cost and quality. Designs
    - Proficiency Levels
      - Proficiency Level 1:** Contributes to the design and general functional specification and interfaces
      - Proficiency Level 2:** Organises the overall planning of the design of the application.
      - Proficiency Level 3:** Accounts for own and others actions in ensuring that the application is correctly integrated within a complex environment and complies with user/customer needs.
    - Skills Examples
    - Knowledge Examples
    - A.7.Technology Trend Monitoring
    - A.8.Sustainable Development
    - A.9.Innovating
- B.BUILD
  - B.1.Application Development
    - Description:** Interprets the application design to develop a suitable application in accordance with customer needs. Adapts existing solutions by e.g. porting an application to another operating system. Codes, debugs, tests and documents and communicates product develop
    - Proficiency Levels
      - Proficiency Level 1:** Acts under guidance to develop, test and document applications.
      - Proficiency Level 2:** Systematically develops and validates applications.
      - Proficiency Level 3:** Acts creatively to develop applications and to select appropriate technical options. Accounts for others development activities. Optimizes application development, maintenance and performance by employing design patterns and by reusing proved solutions.
    - Skills Examples

Then scroll to the end of the page and click on “Save”. The next screen shows you the two assigned competences to our new condition profile.

## Edit Profile

[Edit General Information](#)
[Edit list of competences](#)
[Edit list of competences](#)
**Select Competence-Framework :** e-CF.The European e-Competence Framework 

ID	Identifier	Competence
68	A.6	<b>Name:</b> Application Design  <b>Description:</b> Analyses, specifies, updates and makes available a model to implement applications in accordance with IS policy and user/customer needs. Selects appropriate technical options for application design, optimising the balance between cost and quality. Designs  <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 2px;">Skills Examples</div> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 2px;">Knowledge Examples</div> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 2px;">Proficiency Levels</div> <b>Categories:</b>
69	B.1	<b>Name:</b> Application Development  <b>Description:</b> Interprets the application design to develop a suitable application in accordance with customer needs. Adapts existing solutions by e.g. porting an application to another operating system. Codes, debugs, tests and documents and communicates product develo  <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 2px;">Skills Examples</div> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 2px;">Knowledge Examples</div> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 2px;">Proficiency Levels</div> <b>Categories:</b>

To connect our course 1870 with the created condition profile please click on “Moodle » Course Authoring Tool” and then on “Edit”.

moodle / Course Authoring Tool

Course Manager

Course Authoring Tool

Studien Module Manager

## All courses (not including ter

+ CREATE A NEW COURSE

Show 10 entries

ID	Short name	Full name	BACKUP	EDIT	DELETE
16	adfa	afadfadf	BACKUP	EDIT	DELETE
12	DBS2	Database systems 2	BACKUP	EDIT	DELETE
11	EQA	EDISON QA Course	BACKUP	EDIT	DELETE
8	1870	Informationsvisualisierung im Internet	BACKUP	EDIT	DELETE
6	DBS1	Database systems	BACKUP	EDIT	DELETE

Showing 1 to 5 of 5 entries Previous 1 Next

Now click on the tab "Condition Profile". In the drop down menu "Choose profile:" select the new profile *condition\_profile\_1870*. Finally, please click on "Save". Now our course 1870 are connected with two profiles, a learning goal and a condition profile.



moodle / Course Authoring Tool

### Edit course: Informationsvisualisierung im Internet

Edit General Information Edit Sections Edit Activities Condition Profile Goal Profile

Choose profile:

condition\_profile\_1870

Save Cancel

## 7.9 Enroll to the new course

To enroll to the created course 1870 click first on "EXPLORE". On the left side we have then different possibilities to filter content from the EP.

## Explore

**Taxonomy**

TU Darmstadt

---

**Publication Year**

0 504 1 008 1 512 2 016

---

**Format**

- Taxonomy 9
- Document 8
- Multimedia 7
- Asset 5
- Online Course 5
- Software 1

Search term  Search Date: newest first

36 results found Page 1 of 4 [Next](#)

**Asset 2**

★★★★☆

Over a dozen reusable components built to provide iconography, dropdowns, input groups, navigation, alerts, and much more.

Asset , 2016

**Programming 101**

Lead author Mariella Guercio Università degli studi di Roma "La Sapienza"; CINI - Consorzio Interuniversitario Nazionale per l'Informatica Authors Mariella Guercio, Ingrid Dillo, Barbara Sieman, Hervé L'Hours Intended audience Funder, Operational, Researcher, Senior management Introduction This course focusses on the topic of Trust in relation to the preservation of digital objects. Long established as a key issue for those engaged in digital preservation, it examines how we can estab...

Online Course , 2016

**RAGE**

Binh Vu

RAGE, Realising an Applied Gaming Eco-system, aims to develop, transform and enrich advanced technologies from the leisure games industry into self-contained gaming assets that support game studios at developing applied games easier, faster and more cost-effectively.

Taxonomy , 2016

**TU Darmstadt**

Minh Duc Hoang

As "Taxonomy" select "TU Darmstadt" and as "Format" "Online Course". The result list now shows on the right side all available courses inclusive the course 01870. To see details please click on *Kurs 01870 "Informationsvisualisierung"*

## Explore

Taxonomy

TU Darmstadt



Format

Online Course 5

Search term

Search

Date: newest first

5 results found

Page 1 of 1



### Programming 101

Lead author Mariella Guercio Università degli studi di Roma "La Sapienza"; CINI – Consorzio Interuniversitario Nazionale per l'Informatica Authors Mariella Guercio, Ingrid Dillo, Barbara Sierman, Hervé L'Hours Intended audience Funder, Operational, Researcher, Senior management Introduction This course focusses on the topic of Trust in relation to the preservation of digital objects. Long established as a key issue for those engaged in digital preservation, it examines how we can estab...

Online Course , 2016



### Grundlage der Informatik 1

This course should be used as template to create a new course in department computer science

Online Course , 2016



### New Course for testing

This course is used as template to create a workshop with only one topic

Online Course , 2016



### New course with template

This course is used as template for creating course in area computer science

Online Course , 2016



### Kurs 01870 „Informationsvisualisierung“

Informationsvisualisierung kann Menschen wesentlich darin unterstützen, den Umfang von Informationskollektionen zu erfassen, deren Beschaffenheit zu verstehen und darin enthaltene relevante Informationen zu erkennen. Angemessene Visualisierungsmethoden für den Einsatz in Benutzungsschnittstellen von Informationssystemen zu finden, gewinnt daher zunehmend an Bedeutung. Der Kurs 1871 führt zunächst in grundlegende Begrifflichkeiten der Informationsvisualisierung ein und kategorisiert deren Techni...

Online Course , 2016

In the next screen, we found beside a more detailed summary further informations of the course: The **Course Facts** with format, start date and the availability, the **Condition profile** and the **Goal profile** and if available **Similar Contents**. Finally, we find the information whether we are already enrolled to this course under **Course Enrolment**. To enroll please click on "Enroll".

## Informationsvisualisierung im Internet

Informationsvisualisierung kann Menschen wesentlich darin unterstützen, den Umfang von Informationskollektionen zu erfassen, deren Beschaffenheit zu verstehen und darin enthaltene relevante Informationen zu erkennen. Angemessene Visualisierungsmethoden für den Einsatz in Benutzungsschnittstellen von Informationssystemen zu finden, gewinnt daher zunehmend an Bedeutung. Der Kurs 1871 führt zunächst in grundlegende Begrifflichkeiten der Informationsvisualisierung ein und kategorisiert deren Techniken. Danach werden die wichtigsten Informationsvisualisierungstechniken und deren grundlegende Methoden und Eigenschaften anhand von Fallbeispielen vorgestellt. Daran schließt sich eine Vorstellung von Basistechnologien an, die bei der Realisierung von Informationsvisualisierungskomponenten für Webanwendungen eine bedeutende Rolle spielen. Dabei hat sich insbesondere die im Kurs 1871 grundlegend vorgestellte "Virtual Reality Modeling Language" (VRML), eine Beschreibungssprache für dreidimensionale Objekte und Szenen, schnell zu einem weitverbreiteten Standard zur Darstellung von Echtzeit-3D-Umgebungen entwickelt. Die Übungen bearbeiten und vertiefen daher gezielt den Entwurf von Informationsvisualisierungsanwendungen und den Umgang mit VRML.

Der Kurs 1872 erweitert zunächst das Wissen über Informationsvisualisierungstechniken und deren grundlegende Methoden und Eigenschaften anhand von Fallbeispielen um zusätzliche Kategorien. Auf den Kenntnissen, die im Kurs 1871 erworben wurden, aufbauend wird im Kurs 1872 das Thema VRML weiter vertieft. Hier kommen abschließend insbesondere das External Authoring Interface sowie verwandte VRML-APIs zur Realisierung von integrierten Informationsvisualisierungsarchitekturen im Zusammenwirken mit anderen Anwendungen und Diensten zur Sprache. Die Übungen bearbeiten und vertiefen gezielt weiter den Entwurf von Informationsvisualisierungsanwendungen und den Umgang mit VRML sowie dessen APIs.

☆☆☆☆☆ 0

### Course Facts

Format: weeks  
 Start: 01.01.1970 01:00:00  
 Availability: Opening

### Course Enrolment

You enrolled in this course.

[Continue](#)

### Condition profile

Profile: condition\_profile\_1870

[Show](#)

### Goal profile

Profile: learning\_goal\_1870

[Show](#)

### Similar Contents

No suggestion for this content.

Now we see the start screen of our course with the different course units and assignments. To open exemplary the first unit please click on "Kurseinheit 1: Grundlagen".

## Informationsvisualisierung im Internet

Dashboard > Computer science > 1870

### Course units

-  [Kurseinheit 1: Grundlagen](#)
-  [Kurseinheit 2: Informationsvisualisierungstechniken I](#)
-  [Kurseinheit 3: Informationsvisualisierungstechniken II](#)
-  [Kurseinheit 4: Evaluation von Informationsvisualisierungstechniken](#)
-  [Kurseinheit 5: Basistechnologie VRML – Teil 1: Grundkonzepte, Animation und Interaktion](#)
-  [Kurseinheit 6: IVIS-Architekturen \(Technologien und Architekturen II\)](#)
-  [Kurseinheit 7: Externe Programmierschnittstellen für auf VRML-basierende Visualisierungen](#)
-  [News forum](#)

SEARCH FORUMS ☰

[Advanced search](#) ?

LATEST NEWS ☰

(No news has been posted yet)

UPCOMING EVENTS ☰

There are no upcoming events

[Go to calendar...](#)  
[New event...](#)

RECENT ACTIVITY ☰

Activity since Thursday, 23 June 2016, 10:55 AM

[Full report of recent activity...](#)

No recent activity

NAVIGATION ☰

### Assignments

-  [Submitted assignment for course unit 1](#)
-  [Submitted assignment for course unit 2](#)
-  [Submitted assignment for course unit 3](#)
-  [Submitted assignment for course unit 4](#)
-  [Submitted assignment for course unit 5](#)


The corresponding pdf-file for course unit one will be displayed in a new screen. Here we can navigate through the unit, download or print it.



EXPLORE IMPORT MOODLE COMPETENCE CONTENT MANAGER ADMIN MY ACCOUNT LOGOUT

Explore / Course Display

IVIS.KE-1.K1870.pdf 1 / 2 ↺ ⬇ ⬆

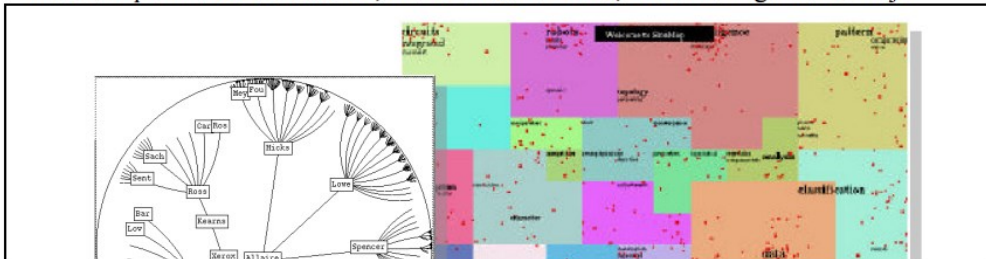


**FernUniversität in Hagen**

---

**Kurs 01870: Informationsvisualisierung im Internet**  
Kurseinheit 1: Grundlagen

Autor: Dipl. Inf. Gerald Jäschke, Dr. rer. nat. D. Biella, Prof. Dr.-Ing. M. Hemmje



To open exemplarily an assignment please go back to the start screen and then click on "Submitted assignment for course unit 1".



## Informationsvisualisierung im Internet

Dashboard > Computer science > 1870 > Assignments > Submitted assignment for course unit 1

### Submitted assignment for course unit 1

Submitted assignment for course unit 1








 [IVIS.KE-1.K1870.pdf](#)

#### Submission status

This assignment will accept submissions from **Monday, 3 October 2016, 12:00 AM**

Submission status	This assignment does not require you to submit anything online
Grading status	Not graded
Due date	Monday, 17 October 2016, 12:00 AM
Time remaining	114 days 13 hours
Last modified	Friday, 24 June 2016, 10:43 AM
Submission comments	<a href="#">▶ Comments (0)</a>

**NAVIGATION** ☰

- Dashboard
- ▀ Site home
- Site pages
- Current course
- ▼ 1870
  - Participants
  - Badges
  - Course units
  - ▼ Assignments
    -  **Submitted assignment for course unit 1**
    -  Submitted assignment for course unit 2
    -  Submitted assignment for course unit 3
    -  Submitted assignment for course unit 4
    -  Submitted assignment for course unit 5
    -  Submitted assignment for course unit 6
    -  Submitted assignment for course unit 7

We see now the document with the first assignment “IVIS.KE-1.Kk1870.pdf” and information about the submission status. To open the actual assignment please click on “IVIS.KE-1.Kk1870.pdf”.