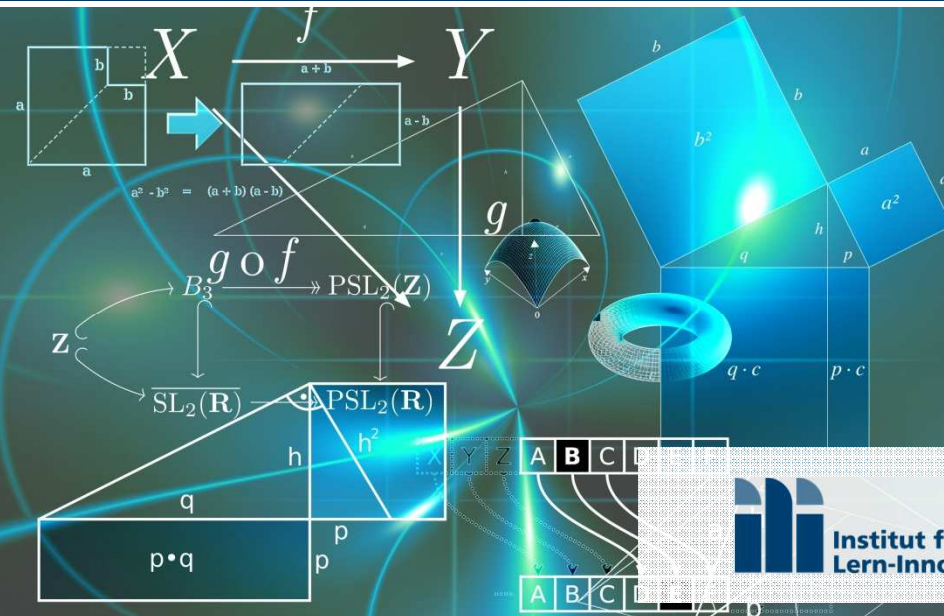


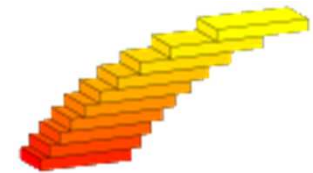
Development of the STACK plugin for ILIAS

Jesus Copado, Fred Neumann



STACK plugin for ILIAS

- Initiated by the optes project in 2013
- Developed by Jesus Copado
- Maintained at ILI
- Around four major updates
- Current version 3 for ILIAS 5.3 with STACK 4
- Features discussed in Mathe+ILIAS group
- Demo at www.stack.odl.org



Crowdfunding

- Duale Hochschule Baden Württemberg
- Hochschule Bremen
- Helmut-Schmidt-Universität Hamburg
- Fachhochschule Aachen
- Hochschule Karlsruhe
- Fachhochschule Münster
- Universität Freiburg
- Universität zu Köln

Currently $\frac{1}{2}$ of the work externally financed



Maintenance Principles

- Support each ILIAS version
- Adapt to ILIAS behaviours as far as possible
- Don't add special features in question design
- Keep the questions exchangeable
- Keep on track with the plugin versions for moodle

Ableitung 2

Gegeben sei die Funktion

$$h(x) = -\frac{1}{2} \cdot x^4 + 4 \cdot x^3 - 12 \cdot x^2 - 7 \cdot x + 5$$

a. Berechnen Sie die zweite Ableitung von
 $h(x)$ nach x

$h''(x) =$

b. Wie viele Wendepunkte besitzt $h(x)$?

Wendepunkte=

✓

wurde wie folgt interpretiert: 0


Rückmeldung anfordern

Sie haben die Ableitung richtig berechnet.

Sie haben die richtige Anzahl Wendepunkte angegeben.

Differences of Moodle and ILIAS version

Jesus Copado

- 
- Question View
 - Validation button
 - Feedback report
 - Question Authoring
 - General question settings
 - Potential Response Trees and Inputs

Moodle

Question 1
Answer saved
Marked out of 1.00

Type in $x^2 + 2x + 1$.

Tidy question | Question tests & deployed versions

Your last answer was interpreted as follows:
 x^2

The variables found in your answer were: [x]

Check

ILIAS

Algebraic input

Type in an exponential equation like $x^2 + 2x + 1$.

x^2 interpreted as: x^2

The variables found in your answer were: [x]

Check

Moodle

Question 1

Incorrect

Mark 0.00 out of 1.00

Flag question

Edit question

Type in $x^2 + 2x + 1$. Tidy question | Question tests & deployed versions

Your last answer was interpreted as follows:

$$x^2$$

The variables found in your answer were: [x]

✘ Incorrect answer.

A correct answer is $x^2 + 2x + 1$, which can be typed in as follows: $x^2+2*x+1$

ILIAS

Algebraic input

Type in $x^2 + 2x + 1$.

✓

x^2 interpreted as: x^2

?

Check

Incorrect answer.

The best solution is:

Type in $x^2 + 2x + 1$.

$x^2+2*x+1$ interpreted as: $x^2 + 2x + 1$

?



Moodle

General

Current category: Input sample questions (21) Use this category

Save in category: Input sample questions (21)

Question name:

Question variables:

Random group:

Question text:

Default mark:

Specific feedback:

Penalty:

General feedback:

Question note:

Question tests & deployed versions

ILIAS

Question Pool Test Edit Page Preview **Edit Properties** Feedback Statistics

Edit question Scoring Deployed seeds Unit tests Import question from Moodle/IL Import to Moodle/IL

EDIT STACK QUESTION Save Cancel

Title: Algebraic Input

Author: Jesus Copado

Description:

Question:

Type in (@ta@):
[[input:ans1]]
[[validation:ans1]]

Path: p

Working Time: Hours: 0 Minutes: 1 Seconds: 0

Point(s): 1

Question variables: $2x^2+2x+1$

Question note:

Specific feedback:

Path: p



Moodle

ILIAS

Input: ans1

Input type: Algebraic input
 Model answer: ta
 Input box size: 15
 Strict syntax: Yes
 Insert stars: Insert stars assuming single-character variable names
 Syntax hint: Value
 Hint attribute: solve
 Forbidden words: solve
 Allowed words: Yes
 Forbid float: No
 Require lowest terms: Yes
 Check the type of the response: Yes
 Student must verify: Yes
 Show the validation: Yes, with variable list
 Extra options:

Potential response tree: prt1

Question value: 1
 Auto-simplify: Yes
 Feedback variables:

This potential response tree will become active when the student has answered: ans1

Node 1

Answer test: AlgEquiv
 SAns: ans1
 TAns: ta
 Test options: Quiet: No

Mod: Score: 1
 Penalty: Next: [stop] Answer note: prt1-1-T

Node 1 true feedback:

Node 1 when false:

Mod: Score: 0
 Penalty: Next: [stop] Answer note: prt1-1-F

[Add another node](#)

Options
 Tags
 Created / last saved

[Save changes and continue editing](#) [Preview](#)

OPTIONS

Show question options

INPUTS

Settings of input ans1

Input type: Algebraic input
 Model answer: ta
 Input box size: 15
 Strict syntax: Yes
 Insert stars: Yes
 Syntax hint: Value
 Forbidden words: solve
 Forbid float: Yes
 Allow words: Yes
 Require lowest terms: No
 Check the type of the response: Yes
 Student must verify: Yes
 Show the validation: Yes, with variable list
 Extra options:

POTENTIAL RESPONSE TREES

prt1: New Potential response Tree

Graphical view

Potential response Tree Name: prt1

First Node

Show

New Node

Answer test: AlgEquiv
 Student answer: ans1
 Teacher answer: ta
 Test options: Quiet: No
 Delete node


Mod: Positive score: 1.0000000
 Penalty: 0
 Next node: End
 Answer note: prt1-1-T
 Specific feedback:

Mod: Negative Score: 0.0000000
 Penalty: 0
 Next node: End
 Answer note: prt1-1-F
 Specific feedback:

Path: p

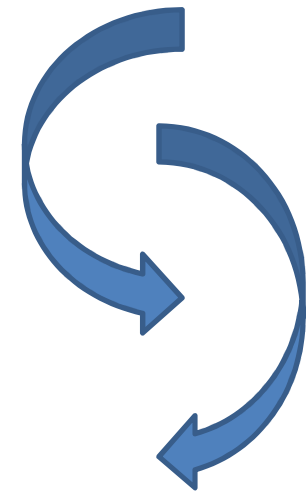
* Required [Save](#) [Cancel](#)

Development Challenges

- 
- Version life cycles of ILIAS and STACK
 - External stakeholders
 - Individual feature requests
 - Design discussions
 - Creativity of question creators
 - Support and mathematical expertise


Version Life Cycle

- One major ILIAS version every year
- Frequent minor versions of STACK
- Parallel branches and testing
 - for ILIAS 5.2 with STACK 3
 - for ILIAS 5.2 & 5.3 with STACK 4
 - for PHP 5 and 7
- Next Step: Update to ILIAS 5.4 with STACK 4.3

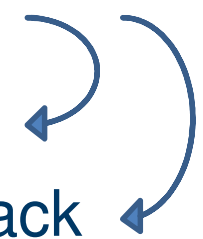


Creating a new plugin version

Today

- github.com/maths/moodle-qtype_stack
 - github.com/ilifau/assStackQuestion
- 
- copy & patch
core part*

Proposal

- github.com/maths/stack_core
 - github.com/ilifau/assStackQuestion
 - github.com/maths/moodle-qtype_stack
 - ...
- 
- include
sub module*

Design Discussions

Problem:

• Wie lautet die Funktionsgleichung der Funktion $f(x)$?

$$f(x) = \begin{cases} \text{[input]} & \text{für } x \leq \text{[input]} \\ \text{[input]} & \text{für } \text{[input]} < x \leq \text{[input]} \\ \text{[input]} & \text{für } x > \text{[input]} \end{cases}$$

- instant validation turned off
- buttons included at feedback placeholders

Solution:

Die Gleichung $x^2 - 2x = 0$ ist äquivalent zu

✓ ∨ ✓

New Request:

Die Gleichung $x^2 - 2x = 0$ ist äquivalent zu

∨

Changes with ILIAS 6.0

- Test question service with a new plugin interface
- Redesign of all question types and feedback

Lückentext Textlücken Ordinalskala

✓ **Bewertung:** Ihre Antwort ist richtig. Sie haben 2 von 2 möglichen Punkten erreicht.

Die Fußball-Bundesliga oder Schulnoten sind Beispiele für eine

Kardinalskala ✓ Richtige Antwortoption - ausgewählt

▼ Die Ordinalskala ist im übrigen nicht der Namensgeber für die Mailänder Skala.

Bei diesem Messniveau ist es nur möglich zu sagen, wie die Ränge belegt sind, den Rängen kann nicht beziffert werden. Man kann kein

arithmetisches Mittel ✓ Richtige Antwortoption - ausgewählt

aus Daten dieser Skalierung bilden.

Eine **Kardinalskala** sortiert Variablen mit Ausprägungen, zwischen denen eine Rangordnung besteht. Ordinalskalierte Variablen enthalten Nominal-Informationen und auch Informationen über die Reihung (Ordnung) der Variablenwerte. Beobachtungen auf einem Merkmal mit ordinalem Messniveau können hinsichtlich dieses Merkmals gruppiert und ihrer Größe nach geordnet werden.






Feature Requests

- Improving performance of maxima connection
- Using STACK questions in ILIAS learning modules
- Appearance of validation, feedback and best solution
- Configurable background colors for feedback types
- More and richtext default values in plugin configuration
- Stepwise feedback for question parts

Features Requests

Process to implement new features requests from users

- 
- ILIAS users feature requests
 - STACK core and ILIAS new versions
 - Our proposal for feature requests

Feature Requests: Sources



SIG Mathe+ILIAS

Special Interest Group for using ILIAS in math education

Forum

Meetings



GitHub



Feature Wiki

Information about planned and released features

 **Feature Wiki**

Information about planned and released features

Seite Was verlinkt hierher? Druckansicht

Suggested for 6.0

Seitenübersicht [Ausblenden]

- 1 New feature suggestions for ILIAS 6.0
- 2 Already suggested features for 6.0

This page was dedicated to collect all feature request for ILIAS 6.0 until feature freeze at April 30, 2019.

1 New feature suggestions for ILIAS 6.0

Please add the feature you want to suggest to the following bullet list. Choose a suitable title, format it as a wiki link and save the paragraph. Then click on the red wiki link to create a new feature page. For more information please follow the instructions at ['How to suggest a new feature'](#). The added suggestions will reviewed regularly and tagged with related metadata for sorting and listing them.

- Scoring by Question (Test): Show 'Best Solution' in scoring Modal
- Letter Avatars: Allow uppercase and omit special characters
- User: Forced password change after login when applying password policy changes
- User: Password History - Prevent early reuse of passwords
- Set Personal Desktop to Deck of Card Listing
- Improve Sorting on Personal Desktop

Aufgabe 05

05. Strömungsnetz

Für den Querschnitt eines Baugrubenverbau mit Spundwand wurde ein Strömungsnetz konstruiert (-> hier klicken <-).
Die für Ihre Berechnungen notwendigen Werte und Randbedingungen sind in der folgenden Tabelle gegeben:

Potentialunterschied	$\Delta H =$	5.4	[m]
Wichte des Bodens	$\gamma =$	20.5	[kN/m ³]
Wichte unter Auftrieb	$\gamma' =$	10.5	[kN/m ³]
Durchlässigkeitsbeiwert	$k =$	$1.5E-4$	[m/s]



Frage 1

Vereinfachen Sie den folgenden Term und stellen Sie ihn als Bruch dar $(-4^{-1})^2 =$ ✓

[1, 2, 4, 3]



8 rechts	-10.0	<input type="text"/>	✓	<input type="text"/>	✓	<input type="text"/>	✓
9	-9.9	<input type="text"/>	✓	<input type="text"/>	✓	[:]	
14	-7.7	<input type="text"/>	✓	<input type="text"/>	✓	<input type="text"/>	✓

c) Ermitteln Sie den Durchfluss pro laufenden Meter durch das skizzierte System auf zwei verschiedene Arten:

- Näherungslösung über kürzesten Sickerweg

Q = ✓ [m³/d · lfm]

- Berechnung über Strömungsnetz

Q = ✓ [m³/d · lfm]

Do you have a feature request?



Identify if is STACK or ILIAS related



Schedule a Virtual meeting with




If everything is OK and funding is provided

Let's Do it!

Discussion

Some open questions

- 
- Where should new features be discussed?
 - How long should they be discussed?
 - Who draws the decision?
 - How can all keep up being informed?