

Moodle

Preparation of automated self examining
questions

What is Moodle?

- Moodle is a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environments.
- <https://moodle.com/about/>

Aim of this short Course: Conceptual Question Design

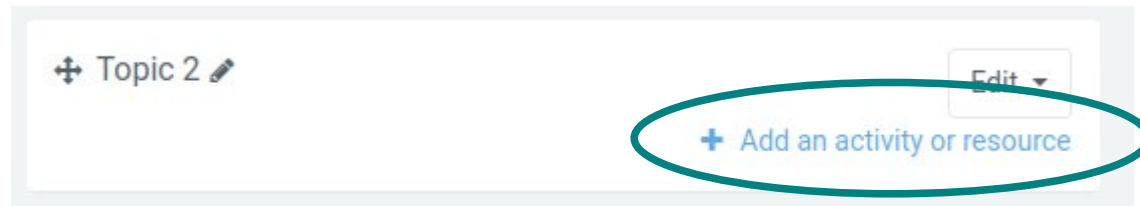
- Students shall enjoy their learning experience.
- Learning should be a continuous process for students.
 - Students shall be able to solve more questions than they are required to solve.
- Teachers shall be able to quantify students knowledge.

Moodle Quiz Creation

- On the course homepage, “Turn on editing”.

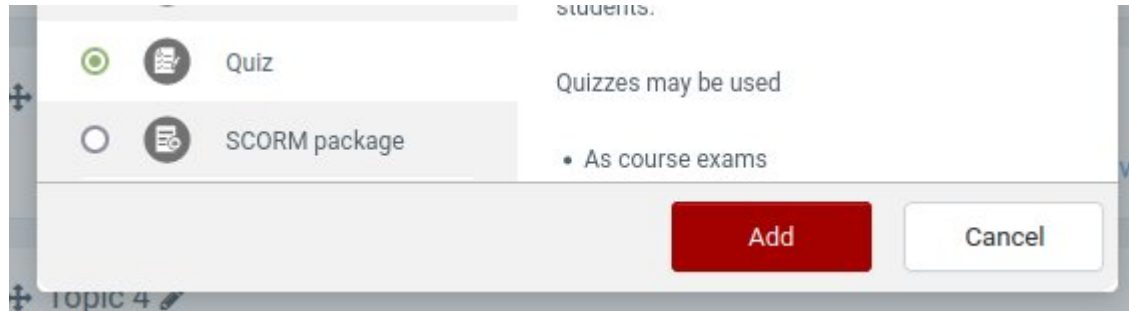


- Select: “Add an activity or resource”.



Moodle Quiz Creation

- From the pop-up window, select “Quiz”.



This “Quiz”, could be a homework assignment, a short examination (quiz), or a full examination.

Moodle Quiz Creation

- The “Quiz” needs to be edited (defined).
For example:
 - Name: “Homework 3”
 - Description:
”This assignment will make you a master for free falling particles.”

You may further provide information that is related to his particular quiz.

- Click on the check-box so that the info is displayed on the homepage.

Moodle Quiz Creation

▼ Timing

Open the quiz



25

August

2022

20

00



Enable

Close the quiz

25

August

2022

23

00



Enable

Time limit



0

minutes



Enable

When time expires



Open attempts are submitted automatically



Moodle Quiz Creation

▼ Grade

Grade category ?

Grade to pass ?

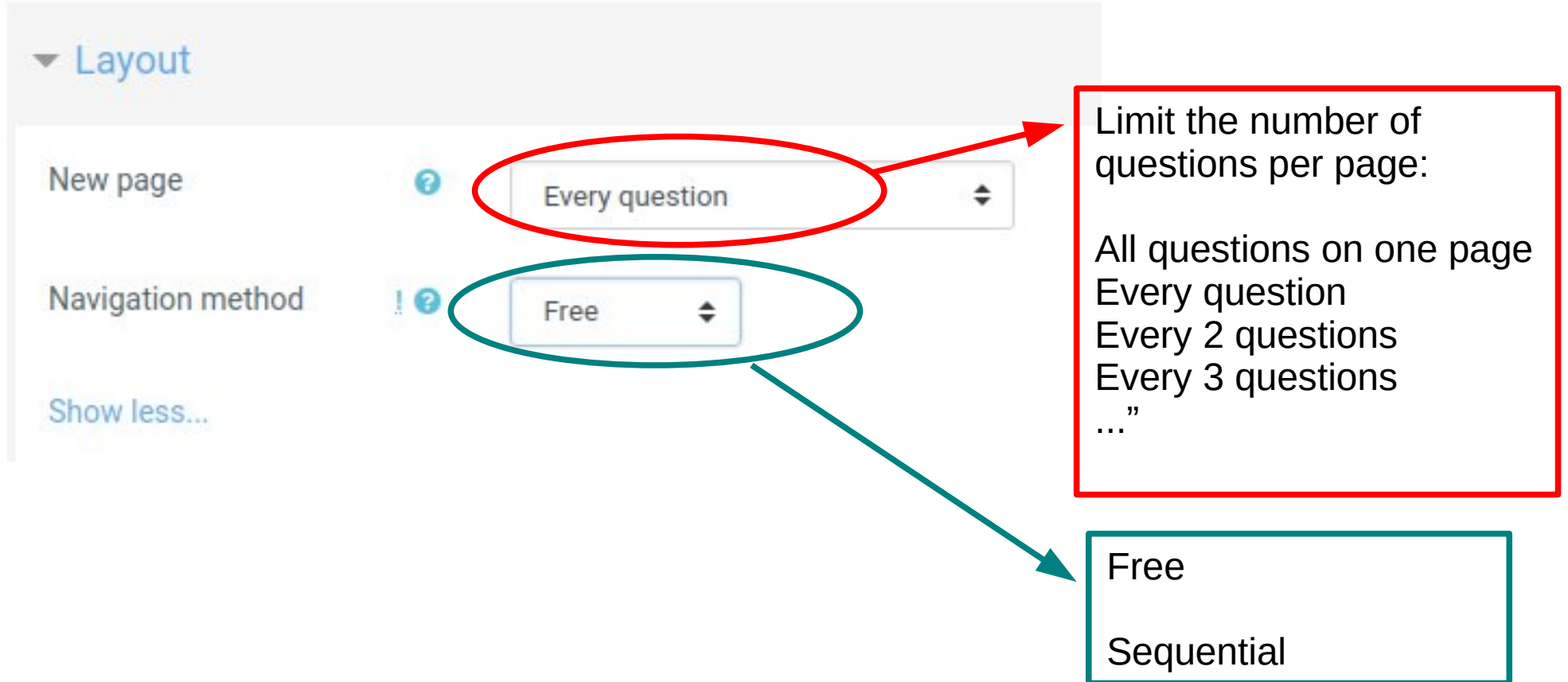
Attempts allowed

Grading method ?

Number of Attempts:

- If the quiz is designed to be an exercise to the students, use “unlimited”.
 - If the quiz intends to see how much the student knows, then use No. of attempts=1.
- In this case, you may still allow multiple tries within the quiz questions – explained later.

Moodle Quiz Creation



The image shows a screenshot of the Moodle Quiz Creation interface. The 'Layout' section is expanded, showing two settings: 'New page' and 'Navigation method'. The 'New page' dropdown is set to 'Every question' and is circled in red. The 'Navigation method' dropdown is set to 'Free' and is circled in teal. A red arrow points from the 'Every question' dropdown to a red-bordered box on the right. A teal arrow points from the 'Free' dropdown to a teal-bordered box at the bottom right.

Layout

New page ? Every question

Navigation method ! ? Free

Show less...

Limit the number of questions per page:
All questions on one page
Every question
Every 2 questions
Every 3 questions
..."

Free
Sequential

Moodle Quiz Creation

▼ Question behaviour

Shuffle within questions ?

How questions behave ?

[Show more...](#)

Shuffle: Students may read all questions before they start to solve them. This option may not be appropriate for examinations!

Students are allowed to check their answers before they submit their results.

Moodle Quiz Creation

▼ Review options ⓘ

During the attempt	Immediately after the attempt
<input checked="" type="checkbox"/> The attempt ⓘ	<input checked="" type="checkbox"/> The attempt
<input checked="" type="checkbox"/> Whether correct ⓘ	<input checked="" type="checkbox"/> Whether correct
<input checked="" type="checkbox"/> Marks ⓘ	<input checked="" type="checkbox"/> Marks
<input checked="" type="checkbox"/> Specific feedback ⓘ	<input checked="" type="checkbox"/> Specific feedback
<input checked="" type="checkbox"/> General feedback ⓘ	<input checked="" type="checkbox"/> General feedback
<input checked="" type="checkbox"/> Right answer ⓘ	<input checked="" type="checkbox"/> Right answer
<input type="checkbox"/> Overall feedback ⓘ	<input checked="" type="checkbox"/> Overall feedback
Later, while the quiz is still open	After the quiz is closed
<input checked="" type="checkbox"/> The attempt	<input checked="" type="checkbox"/> The attempt
<input checked="" type="checkbox"/> Whether correct	<input checked="" type="checkbox"/> Whether correct
<input checked="" type="checkbox"/> Marks	<input checked="" type="checkbox"/> Marks
<input checked="" type="checkbox"/> Specific feedback	<input checked="" type="checkbox"/> Specific feedback
<input checked="" type="checkbox"/> General feedback	<input checked="" type="checkbox"/> General feedback
<input checked="" type="checkbox"/> Right answer	<input checked="" type="checkbox"/> Right answer
<input checked="" type="checkbox"/> Overall feedback	<input checked="" type="checkbox"/> Overall feedback

Should be unclicked.

▼ Overall feedback ?

Grade boundary

100%

Feedback

Rich text editor toolbar with icons for bold, italic, link, unlink, and list. The text "Well Done." is entered in the editor and is circled in green.

Grade boundary

90%

Feedback

Rich text editor toolbar with icons for bold, italic, link, unlink, and list. The text "You seem to have a minor mistake. Keep the effort. :)" is entered in the editor and is circled in green.

Grade boundary

80%

▼ Common module settings

Availability



Hide from students



ID number



Group mode



No groups



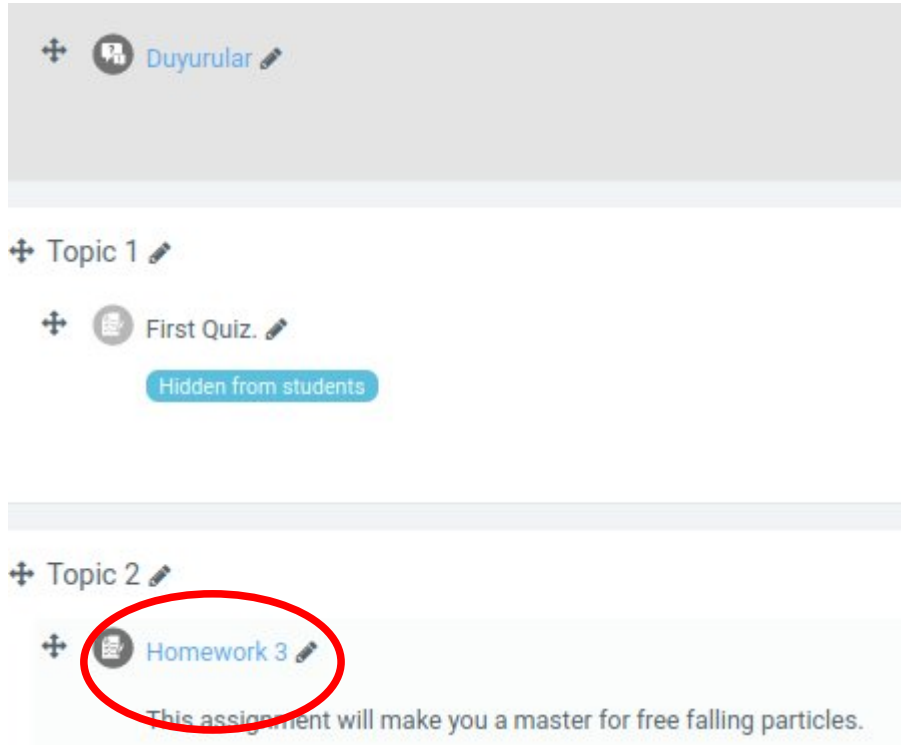
Add group/grouping access restriction

You may want to hide the “quiz” from the students before it is ready to be displayed.

Moodle Quiz Creation

- At this stage, the quiz is setup.
- Now we need to create the questions.

Adding Questions



The screenshot shows a course menu with the following items:

- Duyurular (with a pencil icon)
- Topic 1 (with a pencil icon)
- First Quiz. (with a pencil icon and a "Hidden from students" button below it)
- Topic 2 (with a pencil icon)
- Homework 3 (with a pencil icon, circled in red)

Below "Homework 3", there is a preview text: "This assignment will make you a master for free falling particles."

Go to the main menu.

Click on the quiz:
"Homework 3"

Moodle Question Design

Homework 3

This assignment will make you a master for free falling particles.

The quiz will not be available until Thursday, 25 August 2022, 8:00 PM

This quiz will close on Thursday, 25 August 2022, 11:00 PM.

Grading method: Highest grade



Settings Menu:

- Edit Settings
- ...
- **Edit Quiz**
- Preview
- ...
- Question Bank
 - * Questions
 - * Categories
 - * Import
 - * Export

Moodle Question Design

Editing quiz: Homework 3

Questions: 0 | Quiz closed (opens 25/08/22, 20:00)

Repaginate

Select multiple items

Maximum grade

10

Save

Total of marks: 0

Shuffle ?






Add ▾




Identify the total grade for this quiz.

A new question
From question bank
A random question


Choose a question type to add



-  Calculated simple
-  Drag and drop into text
-  Drag and drop markers
-  Drag and drop onto image
-  Embedded answers (Cloze)

-  Formulas
-  Random short-answer matching
-  Select missing words

OTHER

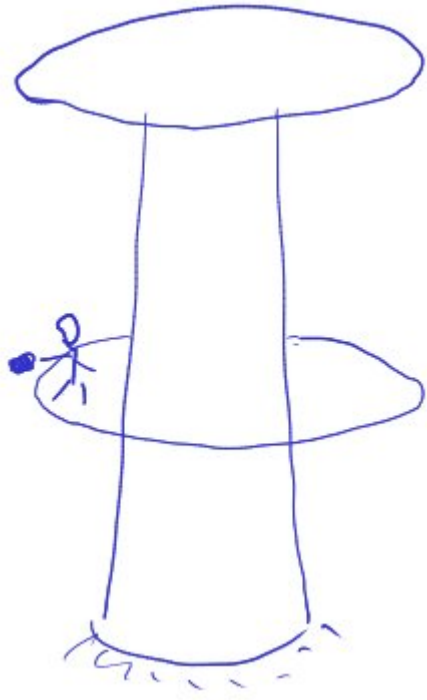
-  Description

Question type with random values and multiple answers. The answer fields can be placed anywhere so that we can create questions involving various structures such as vectors, polynomials and matrix. Other features such as unit checking and multiple parts questions are also integrated tightly and easy to use.

Add

Cancel

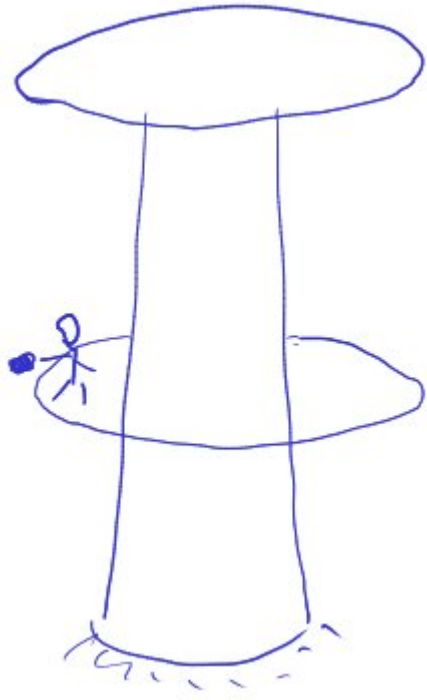
Question: Free fall of a particle



Temel climbs up a tower. At the tower mid-height, he drops a stone and measures the time until he hears the stone impact on the ground after $\{t_0\}$ seconds.

Determine the total height of the tower.

Question: Free fall of a particle



Calculations to obtain the tower height. Note that “ t_0 ” is given.

$$D = \frac{1}{2} g t_0^2 \quad \text{Stone, travel amount}$$

$$H = 2D \quad \text{Tower height}$$

Editing a formulas question

▼ General

Current category

Current category

Current category Default for Test Course (Civil Engineering) (2)

Use this category

Save in category

Default for Test Course (Civil Engineering) (2) 

Question name 

Free Fall

▼ Main question

Question text



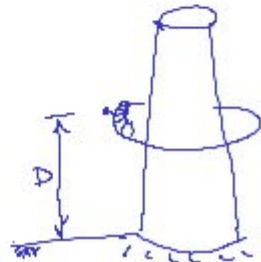
Temel climbs up a tower. At the tower mid-height, he drops a stone and measures the time until he hears the stone impact on the ground after $\{t0\}$ seconds.

a) Determine the height of Temel.

$\{#1a\}$

b) Determine the tower height.

$\{#1b\}$



$\{t0\}$ is a random variable.

$\{#1a\}$ may be used for inline input from students.

▼ Variables

Random variables 

```
t0={1.7:2.3:0.05};
```

Global variables 

```
g = 9.81;  
D=1/2*g*t0**2;
```



► Main question

“t0” is defined as a vector variable – it’s value is random for the students.
 $t0 = \{1.7, 1.75, 1.8, \dots 2.3\}$

“g” is defined as a fixed variable.

“D” is defined as a dependent variable.

Note the usage of “power” !

▼ Part 1

Part's mark*

Answer type

Answer*

Grading criterion*

Unit

Placeholder name

Part's text

If the answer value is calculated correct within a relative error of 1% and the unit is also correct, then full credit (0.7) is marked.

This sentence is replaced with the placeholder, #1a, in the Main tab.
{_0} is a placeholder for the student's answer, and {_u} is a placeholder for the units.

Part 2

Part's mark*

Answer type

Answer*

Grading criterion*

Unit

Placeholder name

Part's text

↴ **A** **B** **I** **≡** **≡**

The tower has a height of

In this part, the answer consists of a single input block. Therefore the units will need to be entered together with the calculated result.

Units

▼ Extra options

[Global] - Deduction for ! ?
wrong unit (0-1)*

0.8

[Global] - Basic ?
conversion rules

Common SI unit

Show less...

When units are incorrect, then count 80% for correct numerical answer.

▼ Check variables instantiation

Number of dataset

5

Instantiate

Preview using dataset

0

Update

Temel climbs up a tower. At the tower mid-height, he drops a stone. He hears the stone impact on the ground after 2.05 seconds.

a) Determine the height of Temel.

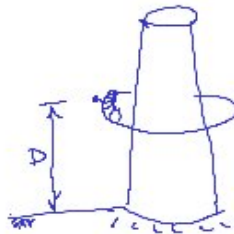
Temel is at a height of {#0} with units in {#u}.

20.6132625 m

b) Determine the tower height.

The tower has a height of {#0} with units in {#u}.

41.226525 m



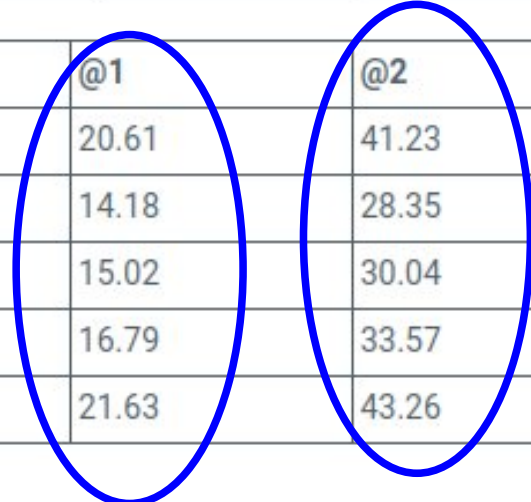
Here, you may see the range of calculated variables, and the final results. You may need to check if the results are meaningful, so that some students may not end up with having unrealistic solutions!

Statistics

	t0	g	D	@1	@2
min	1.7	9.81	14.18	14.18	28.35
max	2.1	9.81	21.63	21.63	43.26

Instantiated dataset

#	t0	g	D	@1	@2
0	2.05	9.81	20.61	20.61	41.23
1	1.7	9.81	14.18	14.18	28.35
2	1.75	9.81	15.02	15.02	30.04
3	1.85	9.81	16.79	16.79	33.57
4	2.1	9.81	21.63	21.63	43.26



Multiple tries

Penalty for each incorrect try

10%

Hint 1

You appear to have a mistake: Make sure that your formula is correct.

Hint 1 options

Hint 1 options

Options *Clear incorrect responses* Show the number of correct responses

Hint 2

Again, you appear to have a mistake: Make sure that you are using the "." for separation of the decimals.

Hint 2 options

Hint 2 options

Options *Clear incorrect responses* Show the number of correct responses

Add another hint

Students are able to re-try another answer for as many "Hints" as you provide.

Here, two hints are given. Therefore, students are allowed to check their answers two times.

▶ Tags

▶ Created / last saved

Save changes and continue editing

 Preview

Save changes

Cancel

Test Course (Civil Engineering)

[Dashboard](#) / [My courses](#) / [Test Course \(Civil Engineering\)](#) / [Topic 2](#) / [Homework 3](#) / [Edit quiz](#)

Editing quiz: Homework 3 ?

Questions: 1 | This quiz is closed

Maximum grade

Repaginate

Select multiple items

Total of marks: 100



Shuffle ?

Page 1

Add ▼

1



Free Fall of a particle Temel climbs up a tower. At the tower mid-height, he drops a st...



100

Add ▼

Click the preview button.

Question 1

Tries remaining: 3

Marked out of 100

Flag question

Edit question

Temel climbs up a tower. At the tower mid-height, he drops a stone and measures the time until he hears the stone impact on the ground after 1.7 seconds.

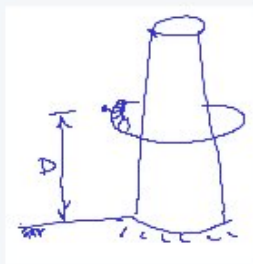
a) Determine the height of Temel.

Temel is at a height of

with units in

b) Determine the tower height.

The tower has a height of



Check


Question Categories

- The question bank within each course has categorization option.
- You may create a category (subject) to store related questions.
Ex: Each chapter of your course may be used as a category.


Questions **Categories** Import Export

Edit categories

Question categories for 'Quiz: Homework 3'

- [Default for Homework 3 \(1\)](#)
The default category for questions shared in context 'Homework 3'.


Question categories for 'Course: Test Course (Civil Engineering)'

- [Default for Test Course \(Civil Engineering\) \(16\)](#)
The default category for questions shared in context 'Test Course (Civil Engineering)'.


▼ Add category

Parent category  Default for Test Course (Civil Engineering) (16) ▾

Name 

Our newly created question resides in this category.

This is the course category. Other questions are present in here.

Now add a new category as Newtonian Mechanics.

Question bank

Select a category: Default for Homework 3 (1)

The default category for questions shared in context 'Homework 3'.

No tag filters applied

Filter by tags...

Show question text in the question list

Search options

Also show questions from subcategories

Also show old questions

Create a new question ...

Question	Actions	Created by
<input checked="" type="checkbox"/> Question name / ID number		First name / Surname / Date
<input checked="" type="checkbox"/> Free Fall of a particle	Edit	GÜRSOY TURAN 27 September 2022, 9:36 PM

With selected:

Delete Move to >> Newtonian Mechanics

This is our newly created question.

Move it to the Newtonian Mechanics Category.

Click here.

Concluding Remarks

- The effort placed into designing Moodle questions is meant for students, who are willing to learn.
- The aim of calculated questions, is to provide students immediate feedback to their work.
- One needs to realize that a newly created Quiz may have “bugs”. These need to be checked, and hopefully identified by a second person.

The End ?