QUIZZES   Section 5

5.1 The Quiz Module

Moodle's quiz module has features that open up a number of strategies that are not usually practical with paper-based testing. It is hard enough to score one batch of quizzes, and nearly impossible to score it 10 times for each student. When the computer does the work for you, it is easy to give students a chance to practice taking a test or give frequent small quizzes.

The quiz activity enables a lecturer to create quizzes comprising questions of various types, including multiple choice, matching, short-answer and numerical.

The lectuer can allow the quiz to be attempted multiple times, with the questions shuffled or randomly selected from the question bank. A time limit may be set. Each attempt is marked automatically, with the exception of essay questions, and the grade is recorded in the gradebook.

The lecturer can choose when and if hints, feedback and correct answers are shown to students.

Quizzes may be used as:
- mini tests for reading assignments or at the end of a topic;
- examination practice using questions from past examinations;
- a way to deliver immediate feedback about performance; and
- a tool for self-assessment.

5.2 How to Create a Quiz

5.2.1 Components of a Moodle quiz

Moodle quizzes have two major components: the quiz body and the question pools. The quiz bodies are the containers for various types of questions from the question pools. The body is what students see when they take the assessment. It also defines how the students interact with the quiz.

Creating a new quiz is a two-step process. In the first step, you create the quiz activity and set its options which specify the rules for interacting with the quiz. In the second step you add questions to the quiz.

The questions in a quiz body can be of any type, chosen manually or at random, and displayed in a set or random order. The question pools can contain questions arranged in a manner that makes sense to you.

You can create pools based on chapters in the textbook, weeks in the semester, important concepts, or any other organisational scheme. Pools can be reused in multiple quizzes, shared between classes and courses, and even moved between systems.

5.2.2   Creating the Quiz Body

When you create the quiz body, you are creating a container for the questions and setting the rules for interacting with the quiz. To create a quiz body:

Turn Editing On
Click "Turn Editing On" if you are not in the editing mode already.

Add and activity or resource
Click "Add and activity or resource" link in the section where you want to add the quiz and select "Quiz". The screenshot shown in Figure 5.1 will appear.
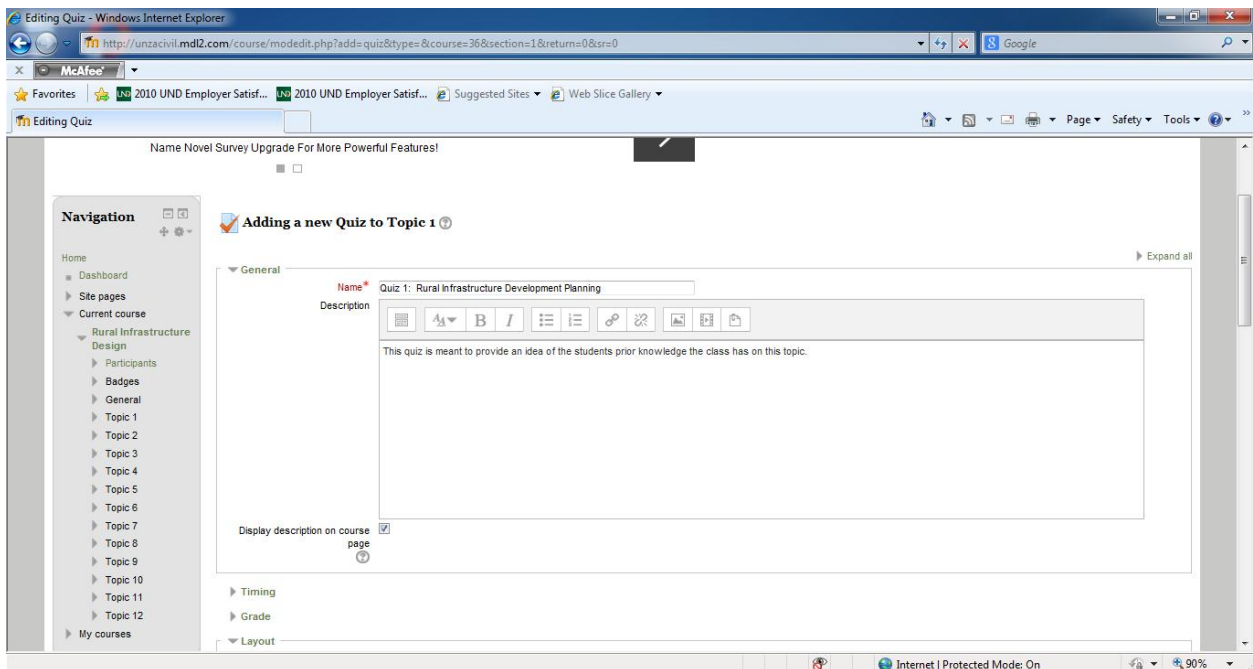

Figure 5.1 Adding a new quiz

There are several sections where you need to fill in different settings for the quiz body as given below:

General Section
- Name: Give the quiz a descriptive name. This name will appear on the home page of the course, navigation menu and other places which will show or provide links to this quiz.
- Description: Describe the syllabus of the quiz and provide instructions or background information, chapters etc.
- Display description on course page: If ticked, the quiz description will appear on the course page directly under the quiz name.

Timing Section
- Open the quiz: You can specify times when the quiz is accessible for people to make attempts. Before the opening time the quiz will be available to students. They will be able to view the quiz introduction but will not be able to view the questions. Quizzes with start times in the future display both the open and close date for students.
- Close the quiz: After the closing time, the students will not be able to start new attempts. Answers that the student submits after the quiz closing date will be saved but they will not be marked.
- Time limit: By default, quizzes do not have a time limit, which allows students as much time as they need to complete the quiz. If you do specify a time limit, several things are done to try and ensure that quizzes are completed within that time:
  (i) A countdown timer is shown in the quiz navigation block.
  (ii) When the timer has run out, the quiz is submitted automatically with whatever answers have been filled in so far.
  (iii) If a student manages to cheat and goes over the allotted time, no marks are awarded for any answers entered after the time ran out.
- When time expires: There are three options as to what will happen when the time limit is up. Choose the one you need from the dropdown menu:
  (i) Open attempts are submitted automatically.
  (ii) There is a grace period when open attempts can be submitted, but no more questions answered.
  (iii) Attempts must be submitted before time expires, or they are not counted (default).
- Submission grace period: If you select "There is a grace period..." then you can check the box to enable the "Submission grace period" and specify a period of time during which learners may still submit the quiz after the time is up.

Grade Section:
- Grade category: If you have categories in your gradebook, select the one you wish the quiz to be in here.
- Attempts allowed: Students may be allowed to have multiple attempts at a quiz. This can help make the process of taking the quiz more of an educational activity rather than simply an assessment. If the quiz is randomized then the student will get a new version for each attempt. This is useful for practice purposes.
- Grading method: When multiple attempts are allowed, there are different
- ways you can use the grades to calculate the student's final grade for the
- quiz.
  (i) Highest grade - the final grade is the highest (best) grade in any attempt
  (ii) Average grade - the final grade is the average (simple mean) grade of all attempts
  (iii) First grade - the final grade is the grade earned on the first attempt (other attempts are ignored)
  (iv) Last grade - the final grade is the grade earned on the most recent attempt only

Layout Section
- Question order: If 'Shuffled randomly' is selected, then the order of questions in the quiz will be randomly shuffled each time a student starts a new attempt at the quiz. The intention is to make it a little harder for students to copy from each other.
- New page: For longer quizzes it makes sense to stretch the quiz over several pages by limiting the number of questions per page. When adding questions to the quiz, page

breaks will automatically be inserted according to the setting you choose here. However, you will also be able to move page breaks around by hand later on the editing page.

- Navigation method*: By choosing Sequential instead of Free, the lectureris forcing the student to progress through the questions in order without being able to go back to a previous question or skip to a later one.

Question Behavior Section

- Shuffle within questions: If set to 'yes', then each time the student takes a quiz the parts of the question will be shuffled randomly.
- How questions behave: The following question behaviors are available when creating a quiz -
  (i)   Deferred feedback: Students must enter an answer to each question and then submit the entire quiz, before anything is graded or they get any feedback.
  (ii)   Adaptive mode and Adaptive mode (no penalties): Allows students to have multiple attempts at the question before moving on to the next question. This behavior requires that the "Whether correct" box is ticked under "During the attempt" in the "Review options" section, at a minimum.
  (iii) Manual grading: Previously used for essay questions (irrespective of what the quiz is set to) but you can now choose to have every question in the quiz manually graded, if you wish.
  (iv)   Interactive mode: After submitting one answer, and reading the feedback, the student has to click a 'Try again' button before they can try a new response. They can be given hints to help them. Once the student has got the question right, they can no longer change their response. Once the student has got the question wrong too many times, they are just graded wrong (or partially correct) and get shown the feedback and can no longer change their answer. There can be different feedback after each try the student makes. The number of tries the student gets is the number of hints in the question definition plus one.
  (v)   Immediate feedback: Similar to interactive mode in that the student can submit their response immediately during the quiz attempt, and get it graded. However, they can only submit one response, they cannot change it later.
  (vi)   Deferred feedback or Immediate feedback with Certainty-based marking (CBM): With CBM, the student does not only answer the question, but they also indicate how sure they are they got the question right. The grading is adjusted by the choice of certainty, so that students have to reflect honestly on their own level of knowledge in order to get the best mark.

- Each attempt builds on the last: If multiple attempts are allowed and this setting is set to Yes, then each new attempt contains the results of the previous attempt. This allows the student on the new attempt to concentrate on just those questions that were answered incorrectly on the previous attempt. If this option is chosen then each attempt by a particular student uses the same questions in the same order, independent of randomization settings. To show a fresh quiz on every attempt, select No for this setting.

Review Options Section

This section controls what information studentswill be shown when they review their past attempts at the quiz, and during theattempt in adaptive mode. It is a matrix with check boxes. The various pieces of information that can be controlled are:

- The attempt: Will show how the student responded to each question.
- Whether correct: Displays whether the students response to each question is correct or incorrect.
- Marks: Reveals the marks awarded to the student and the grade for the quiz.
- Specific feedback: Will show the feedback for the response to the answer as set when adding the question to the quiz. Each response to a question can have feedback for both correct and incorrect answers.
- General feedback: Displays the general feedback for the whole question as set when adding the question to the quiz. You can use the general feedback to give students some background to what knowledge the question was testing.
- Right answer: Reveals the correct answer to each question, whether the student answered correctly or not.
- Overall feedback: Displays feedback for the entire quiz as set in the quiz settings.
- For each of the above items, you can determine the timeframe when the students will see them:
    - (i) During the attempt: Is only available when "How questions behave" has been set to "Immediate feedback'", "Immediate feedback with CBM" and "Interactive with multiple tries" . If set to one of these options then a "Check" button will appear below the answer and when clicked the student will submit that response and then receive immediate feedback.
    - (ii) Immediately after the attempt: means within 2 minutes of the student clicking "submit all and finish".
    - (iii) Later, while the quiz is still open: means after 2 minutes, but before the close date (if the quiz does not have a close date, this phase never ends).
    - (iv) After the quiz is closed: means what it says (you never get here for quizzes without a close date).

Appearance Section

- Show the user's picture: If enabled, the student's name and picture will be shown on-screen during the attempt, and on the review screen, making it easier to check that the student is logged in as themselves in an invigilated (proctored) exam.
- Decimal places in grades: This option determines how many digits will be shown after the decimal separator when the grade is displayed. A setting of 0 for example means that the grades are displayed as integers. This setting is only used for the display of grades, not for the display or marking of answers.
- Decimal Places in Question Grades: This setting specifies the number of digits shown after the decimal point when displaying the grades for individual questions.
- Show Block during Question Attempts*: If set to yes then normal blocks will be shown during quiz attempts.

Extra Restrictions on Attempt Section

- Require password: If you specify a password in here then participants must enter the same password before they are allowed to make an attempt on the quiz. This is useful to give only a selected group of student's access to the quiz.

- Require network address: You can restrict access for a quiz to particular subnets on the LAN or Internet by specifying a comma-separated list of partial or full IP address numbers. This is especially useful for a proctored (invigilated) quiz, where you want to be sure that only people in a certain room are able to access the quiz.
- Enforced delay between attempts: You can set a time (from seconds to weeks) between the first and second attempt of a quiz. You can also (or alternatively) set a time from seconds to weeks for subsequent attempts after the second attempt. Thus, you might allow a student to take the quiz twice immediately with no delay, but if they want to improve their score with a third attempt, they are forced to wait a week and use the time for extra revision.
- Browser security: The options in this section offer various ways to try to restrict how students may try to 'cheat' while attempting a quiz. If "Full screen pop-up with some JavaScript security" is selected,
  - (i) The quiz will only start if the student has a JavaScript-enabled web-browser
  - (ii) The quiz appears in a full screen popup window that covers all the other windows and has no navigation controls
  - (iii) Students are prevented, as far as is possible, from using facilities like copy and paste.

Overall Feedback Section

Overall feedback is text that is shown after a quiz has been attempted. The text that is shown can depend on the grade the student got. Grade boundaries can be specified either as a percentage, for example "31.41%", or as a number, for example "7". If your quiz is out of 10 marks, a grade boundary of 7 means 7/10 or better.

Note that the maximum and minimum grade boundaries (100% and 0%) are set automatically.

Common Module Settings Section

- Visible: Show/hide the quiz activity from the students.
- ID Number: Set and ID number to easily identify the quiz activity in the gradebook.
- Group Mode: This setting has 3 options:
  - (i) No groups - There are no sub groups, everyone is part of one big community
  - (ii) Separate groups - Each group member can only see their own group, others are invisible
  - (iii) Visible groups - Each group member work in their own group, but can also see other groups.
  - (iv) Grouping: A grouping is a collection of groups within a course. If a grouping is selected, students assigned to groups within the grouping will be able to work together.

Save and Display

Click "Save and Display" to proceed with building the quiz and adding questions to the quiz.
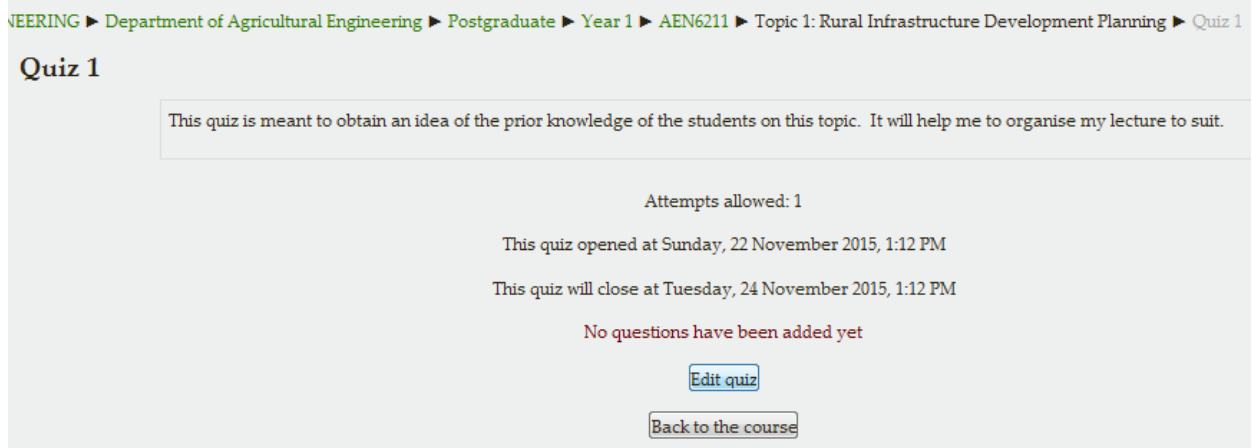
5.2.3 Building the Quiz

Once you have saved your changes, you will see the quiz activity and its description as shown in Figure 5.2.

Figure 5.2 Quiz activity and its description

Click on the link for the quiz name to obtain the quiz's home page given in Figure 5.3.

Figure 5.3 Quiz home page

Click the *Edit Quiz* button which will take you to the second editing screen shown in Figure 5.4 where you will write and select questions to include in the quiz body. Here you will also categorise your quiz questions and add them to the quiz body you just created.
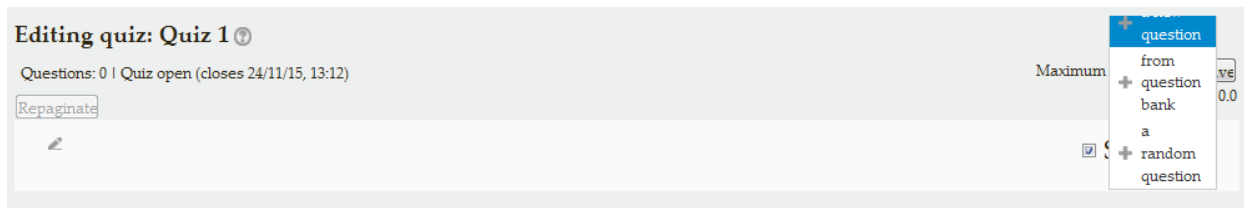
Figure 5.4 Quiz editing screen

On the center of the page you will see the questions you have added to the quiz. Since this is a new quiz, so there are no questions there.

You can add questions to a quiz in three ways:
- create them one at a time within the quiz
- retrieve them from a question bank
- import them from a file on your network or computer, or from one of your uploaded course files

To create questions one at a time within the quiz:

- Click Add Question to obtain the Choose a question type to add window shown in Figure 5.5.
- Choose the question type you want to add.
- Select the Question Category for the question you are creating.
- Fill in the question form, making sure to give a grade to the correct answer.
- Click "Save changes".

If you have a very complex question, and you want to check it as you go along, you can preview it and then click "Save changes and continue editing".
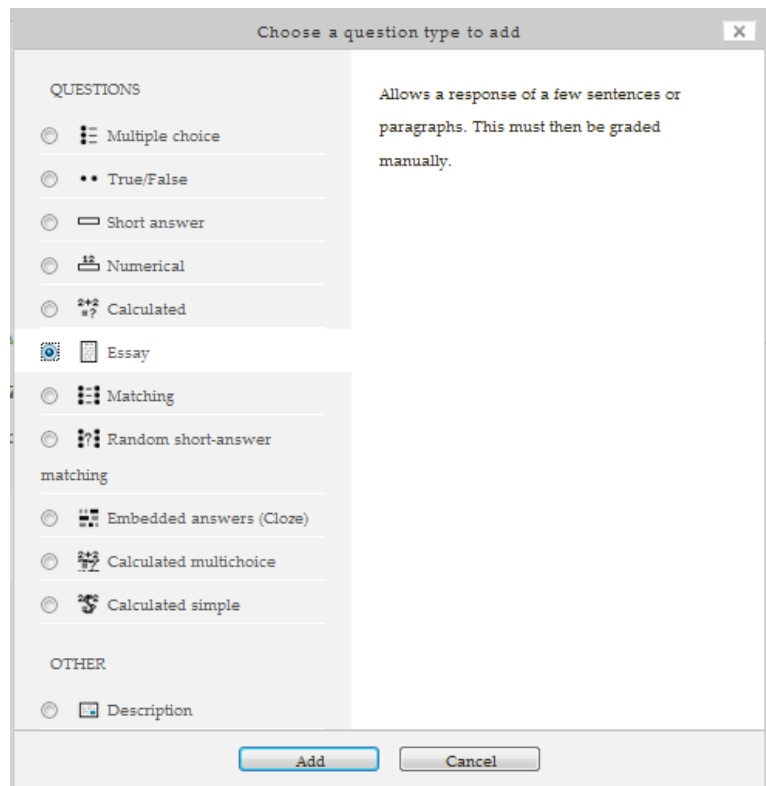
Figure 5.5 Choose a question type to add window

On the right side of the page, you'll see a block named "Question Bank contents", when expanded it will show the contents of the question bank.

Before we start adding questions to our quiz or creating questions, let's take a more detailed look at question bank and categories

Question Bank

Question Bank allows a lecturer to create, preview, and edit questions in a database of question categories. The categories can be limited to being used on the site, course or quiz level. The questions in a category can be added to a Quiz or to a lesson activity via an export process. You can access the question bank by creating or editing a quiz activity or via Course administration > Question bank, as shown in Figure 5.6.

Select a category

Questions are organized into categories. Initially each course has only one category called "Default". It is good practice to create more categories to organize your questions. This not only makes it easier to find questions, but makes the use of random questions and matching question easier. Each category has a context which determines where the questions in the category can be used:

Figure 5.6 Question bank link

- Activity context - Questions only available in the activity module
- Course context - Questions available in all activity modules in the course
- Course category context - Questions available in all activity modules and courses in the course category
- System context - Questions available in all courses and activities on the site

To add a category:
- Open the question bank from Course administration > Question Bank > Categories.
- Below the list of current categories you will see a form to add a new category.
- Choose the 'parent' category in which your new category will be placed. The parent category is the one in which the new category will be placed. "Top" means that this category is not contained in any other category.
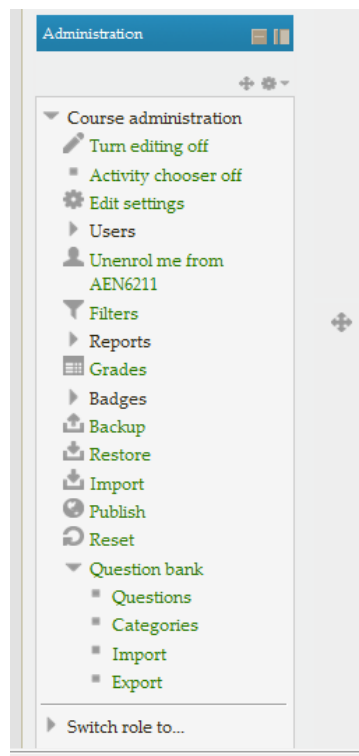 (i)   Placing your category in another category makes it a sub-category of the parent.

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(ii)   Choosing 'Top' means that your category is a top level category, not a subcategory.
- Type the name of your new question category in the text box.
- Add an optional meaningful description in the category info area.
- Click the 'Add Category' button. Your new question category will appear in the list of current categories.
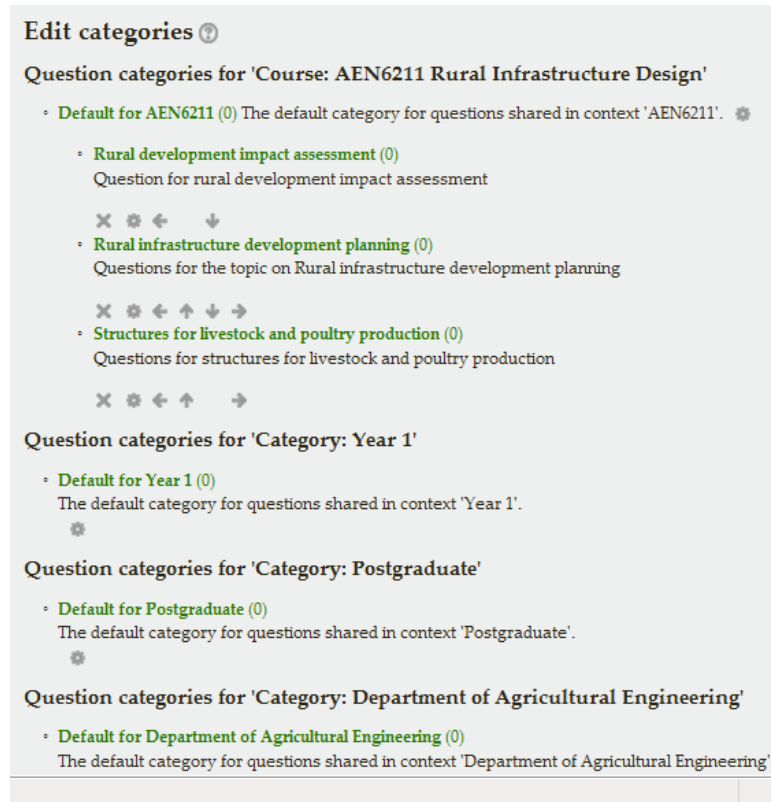

Figure 5.7 Manage question categories

To create new questions in the Question bank
After creating the categories for questions, now you can add questions from a number of locations within the editing quiz page:
- Click Course administration > Question Bank > Questions to get the question bank page shown in Figure 5.8.
- Click "Create a new question".

Figure 5.8 Adding questions to the question bank

To Add Questions from a Question Bank

- Once you've created your questions, you need to add them to the quiz.
- On the editing quiz page, as shown in the Figure 5.9, select a number of questions using the checkboxes
- Click the "Add selected question to the quiz" button below the question list.
- To add the individual questions to the quiz, just click the "plus" icon besides the question.
- If you want to add all of the questions you created to the quiz, click the "Select all" checkbox in the top and then click the "Add to quiz" button.

Figure 5.9 Adding selected questions from a question bank to a quiz

To ensure all previously made questions are available, make sure to tick the boxes "*also show questions from sub-categories/old questions*".

Once you've added a question to the quiz, it appears on the left side of the page in the quiz question list. The question is still selectable on the right, but you can add it to the quiz only once.

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You can also delete a question from the quiz by clicking the delete icon.

You will also need to set the grade for each question. You can set the number of points for each question in the "Marked Out of :" field.

You may want to make certain questions or question types worth more than others. Remember, the questions will be weighted to match the total points possible for the quiz you set in the quiz body. You should also set the "Maximum grade" for the whole quiz on the top of the page in "Maximum Grade" field. This does not have to be equal to the sum of the grades for the individual questions. The grades achieved by the students will be rescaled to be out of this maximum grade. When you are done, click the "**Save**" button.

5.3   Managing Quizzes

Once students start to take the quizzes, you will have a lot of data available. When attempts have been made on the quiz, the lecturer can click the quiz name and access the reports by clicking the link "Attempts - (No. of attempts.) It is then possible to filter the reports according to preference.

You can also access quiz results by clicking on the Administration> Quiz administration> Results. This opens up other links, enabling them to view by grade, by correct response, by statistics and by manually graded responses.

5.3.1 Grades report

Grade reports show all the students' quiz attempts, with the overall grade, and the grade for each question. Figure 5.9 shows the lecturer's view of quiz results. There are links to review all the details of a student's attempt, just as the student would see it.

There is a setting form at the top of the page that can be used to control what is displayed. The lecturer can select from:
- enrolled users who have attempted the quiz;
- enrolled users who have not attempted the quiz;
- enrolled users who have, or have not, attempted the quiz;
- all users who have attempted the quiz

The results can be downloaded in a variety of formats. At the bottom of the page is a graph showing the distribution of scores. There are check boxes to allow you to individually re-grade or delete the selected attempts. By clicking on the score link, you are able to look at an individual student examination.

Figure 5.9 Lecturer's view of quiz results

5.3.2 Responses report

This is very similar to the Grades report, except that it shows the responses the students gave, rather than the marks they earned as shown in Figure 5.12. It is also possible to show the question text or the right answer, to compare with the student's response. This is helpful when the question is randomized.

Figure 5.9 Quiz responses

5.3.3 Manual grading report

The Quiz manual grading report makes it easy to manually grade questions in the quiz. The first screen of the report lists all the questions in the quiz that need to be, or have been, manually graded (for example essay questions) with the number of attempts.

There is an option to also show the questions that have been automatically graded, which if useful if you ever need to edit the grades by hand.

If you decide to add additional questions to the quiz, you will need to delete all attempts before being allowed to do so.