**FP3:** Authenticate User

**Description:** The product shall ensure that only authenticated users can access system functionality. Authenticated users are given confidential credentials that serve as identification when accessing the system.

**Priority:** Mandatory

**Scope:** No Effect

**Stability:** Firm

**Quality Attributes:**

Security: Only users explicitly given access to the product will be authenticated.

Privacy: Only a user and superuser can edit that specific users’ credentials. No one can view passwords in plaintext.

**Depends on:** No dependencies

**FP10.1:** Add grade tier

**Description:** Instructors can classify student score percentiles into discrete categories. Usually, instructors classify scores by A, B, C, D, F, but they can add their own unique grade tiers if they want.

**Priority:** Desirable

**Scope:** Affects the Manage assessments and Assign Score Gradebook requirements.

**Stability:** Firm

**Quality Attributes:**

Security: Only instructors can add grade tiers to their courses.

Usability: Instructors of all technical competencies should have no issue adding grade tiers.

**Depends on:** FP7, FP11

**FP10.2:** Remove grade tier

**Description:** A instructor may choose to remove a grade tier for a section they teach. Forcing an instructor to use their original grade tiers for the duration of the section is annoying and removing grade tiers will not negatively affect the experience of other users if they are notified when relevant sections have a grade tier removed. Notification of these changes is currently the responsibility of the instructor. However, a notification system may be implemented in the future.

**Priority:** Desirable

**Scope:** Affects the Manage assessments, Manage sections and Assign Scores Gradebook requirements.

**Stability:** Firm

**Quality Attributes:**

Security: Only an instructor that teaches the section can remove grade tiers.

Usability: Instructors of all technical competencies should have no issue removing grade tiers.

**Depends on:** FP7, FP11

**FP10.3:** View grade tier

**Description:** Department chairs, instructors, and enrollees of the section information can view the grade tiers for that section as well as their corresponding score ranges.

**Priority:** Desirable

**Scope:** Affects the Manage assessments Gradebook requirement.

**Stability:** Firm

**Quality Attributes:**

Security: Only users with access to the section can view the grade tiers.

Usability: All users with access should be able to view grade tiers without technical experience.

**Depends on:** FP7, FP11

**FP10.4:** Modify grade tiers

**Description:** Instructors should be able to modify grade tiers for their courses. Instead of removing an existing grade tier and adding a replacement, a current grade tier should be able to be modified in one action.

**Priority:** Desirable

**Scope:** Affects the Manage assessments and Assign Score Gradebook requirements.

**Stability:** Medium

**Quality Attributes:**

Security: Only an instructor of the section can modify grade tiers for that section.

Usability: Instructors of all technical competencies should have no issue modifying grade tiers.

**Depends on:** FP7, FP11

**FP10.5:** Copy grade tiers

**Description:** Instructors should be able to copy grade tiers that were already created previously, so they can be applied to a new section. This reduces the amount of work an instructor must do when creating sections.

**Priority:** Desirable

**Scope:** Affects the Manage assessments Gradebook requirement.

**Stability:** Firm

**Quality Attributes:**

Security: Only an instructor of a section can copy grade tiers to that section.

Usability: Instructors of all technical competencies should be able to copy grade tiers.

**Depends on:** FP7, FP11

**FP12.1.1:** Add an assessment kind

**Description:** Adding an assessment kind consists of adding a name (such as assignment, test, exam, quiz, etc.), a description of the assessment kind, and a weightage for grading purposes. Instructors can add assessment kinds for each section they teach.

**Priority:** Mandatory

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Only an instructor that teaches the section can add assessment kinds to that section.

Usability: Instructors of all technical competencies should be able to add assessment kinds.

**Depends on:** FP7, FP11

**FP12.1.2:** Remove an assessment kind

**Description:** Instructors should be able to remove assessment kinds that were previously added to a section. If an assessment of that kind was already graded for that section, the instructor should not be allowed it as this will affect the grades of the students.

**Priority:** Highly desirable

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Only an instructor teaching the section can remove an assessment kind for that section.

Usability: Instructors of all technical competencies should be able to remove assessment kinds.

**Depends on:** FP7, FP11

**FP12.1.3:** View an assessment kind

**Description:** Instructors should be able to view the assessment kinds they created. Enrollees of the section should also be able to view assessment kinds, so they the weightage of the assessment items they receive.

**Priority:** Mandatory

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Only an instructor teaching the section and a section’s enrollees can view the assessment kinds for that section.

Usability: Instructors of all technical competencies should be able to view their assessment kinds.

**Depends on:** FP7, FP11

**FP12.1.4:** Modify an assessment kind

**Description:** Instructors should be able to modify an assessment kind instead of removing an existing assessment kind and adding a new one. A one-step modification process is less time and resource consuming. Modifying an assessment kind would include modifying its name, description, or weightage.

**Priority:** Desirable

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Only an instructor teaching the section can modify assessment kinds for that section.

Usability: Instructors of all technical competencies should be able to modify assessment kinds.

**Depends on:** FP7, FP11

**FP12.1.5:** Copy assessment kinds

**Description:** Instructors should be able to copy assessment kinds they created for previous sections, so they don’t have to duplicate work.

**Priority:** Desirable

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Only instructors of a section can copy assessment kinds to that section.

Usability: Instructors of all technical competencies should be able to copy assessment kinds.

**Depends on:** FP7, FP11

**FP12.2.1:** Add an assessment item

**Description:** Adding an assessment kind consists of selecting which kind of assessment it is, a name, and the base points the item is worth. Only the instructor of the section can add assessment items to that section.

**Priority:** Mandatory

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Only an instructor teaching the section can add assessment items to it.

Usability: Instructors of all technical competencies should be able to add assessment items.

**Depends on:** FP7, 12.1

**FP12.2.2:** Remove an assessment item

**Description:** Instructors should be able to remove assessment items from their sections.

**Priority:** Highly Desirable

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Only an instructor of a section can remove assessment items from that section.

Usability: Instructors of all technical competencies should be able to remove assessment items.

**Depends on:** FP7, FP12.1

**FP12.2.3:** View an assessment item

**Description:** All users who have access to a section should be able to view assessment items for that section. Instructors need to view assessment items they are handing out to students and students need to view assessment items they need to complete.

**Priority:** Mandatory

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Only users with access to the section can view the assessment items of that section.

Usability: Users of all technical competencies should be able to view assessment items.

**Depends on:** FP7, FP9, FP12.1

**FP12.2.4:** Modify an assessment item

**Description:** Instructors must be able to modify an assessment item for clarification, modification of tasks, revision of due dates, etc.

**Priority:** Mandatory

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Only an instructor of a section can modify assessment items from that section.

Usability: Instructors of all technical competencies should be able to modify assessment items.

**Depends on:** FP7, FP12.1

**FP12.3.1:** Add a student submission

**Description:** Instructors must be able to assign scores to specific students in specific sections for specific assessment items. Additionally, an instructor can write notes pertaining to the score assignment. A grade is automatically computed based on grade tiers for each score.

**Priority:** Mandatory

**Scope:** No Effect

**Stability:** Firm

**Quality Attributes:**

Security: Only instructors of a section can assign scores to assessment items.

Usability: Instructors of all technical competencies should be able to add a submission.

**Depends on:** FP7, FP9, FP11, FP12.2

**FP12.3.2:** Modify a submission

**Description:** Instructors must be able to modify a submission for their section in case a grade needs to be modified for one of their students.

**Priority:** Desirable

**Scope:** No Effect

**Quality Attributes**

Security: Only instructors of a section can modify its submissions.

Usability: Instructors of all technical competencies should be to modify a submission.

**Depends on:** FP7, FP9, FP11, FP12.2

**FP12.4.1:** Report on assessment kinds graphically

**Description:** Student can view a line graph of assessment item scores of a specific assessment kind, and Instructors can view distribution of sections enrollees' assessment kind average scores.

**Priority:** Optional

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Only users with explicit permission can view graphical reports on assessment kind.

Usability: Users of all technical competencies should be able to view graphical reports.

**Depends on:** FP7, FP9, FP11, FP12.1, FP12.2, FP12.3

**FP12.4.2:** Report on assessment kinds with table

**Description:** If a graphical view is not wanted, a table containing the data can be output for viewing. The reports are the same as those described in FP12.4.1.

**Priority:** Optional

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Only users with explicit permission can view tabular reports on assessment kind.

Usability: Users of all technical competencies should be able to view tabular reports.

**Depends on:** FP7, FP9, FP11, FP12.1, FP12.2, FP12.3

**FP12.5.1:** Report on assessment items graphically

**Description:** Instructors should be able to view students’ performance on a certain assessment item. They can view a distribution of a section’s enrollees’ assessment item scores.

**Priority:** Optional

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Students should not be able to view how other students performed.

Usability: Users of all technical competencies should be able to view graphical reports.

**Depends on:** FP7, FP9, FP11, FP12.2, FP12.3

**FP12.5.2:** Report on assessment items with a table

**Description:** If a graphical representation is not wanted, users should be able to view the data in a table form. Both instructors and students should be able to view their assessment items. In addition to the report described in FP12.5.1, students should be able to compare their individual score on an assessment item with the class average in a table.

**Priority:** Optional

**Scope:** No effect

**Stability:** Firm

**Quality Attributes:**

Security: Students should not be able to view how other students performed.

Usability: Users of all technical competencies should be able to view tabular reports.

**Depends on:** FP7, FP9, FP11, FP12.2, FP12.3

**NP1:** Security

**Description:** Only users who have permission to create, update, view, or delete data should be able to do so. For example, students should not be able to assign themselves scores, nor should instructors who do not teach certain sections be able to make changes to that section’s data.

**Priority:** Mandatory

**Scope:** Affects FP3, FP10, FP12

**Stability:** Firm

**Quality Attributes:**

N/A

**Depends on:** N/A

**NP2:** Privacy

**Description**: Only users with explicit access can view private information.

**Priority:** Mandatory

**Scope:** Affects FP3, FP10.3, 12.1.3, FP12.2.3, FP12.4.1, FP12.4.2, FP12.5.1, FP12.5.2

**Stability:** Firm

**Quality Attributes:**

N/A

**Depends on:** N/A

**NP3:** Speed

**Description**: User interaction with the product must be reasonably fast compared to competing products and/or similar software. Ideally, it should be faster.

**Priority:** Highly desirable

**Scope:** Affects all functional product requirements

**Stability:** Firm

**Quality Attributes:**

N/A

**Depends on:** N/A

**NP4:** Memory

**Description:** Each storage operation requires that a certain amount of memory be made available to store the results. Minimizing the amount of memory required to run and store data from GradeBook will help it gain a competitive edge over competing products.

**Priority:** Highly desirable

**Scope:** FP3, FP10.1, FP10.2, FP10.4, FP10.5, FP12.1.1, FP12.1.2, FP12.1.4, FP12.1.5, FP 12.2.1, FP12.2.2, FP12.2.4, FP 12.3

**Stability:** Firm

**Quality Attributes:**

N/A

**Depends on:** N/A

**NP5:** Usability

**Description:** Users of all technical competencies should be able to use the UI to complete tasks.

**Priority:** Mandatory

**Scope:** FP3, FP10, FP12

**Stability:** Firm

**Quality Attributes:**

N/A

**Depends on:** N/A

**NP6:** Web access

**Description:** Users should be able to access all necessary product features with a web browser.

**Priority:** Mandatory

**Scope:** Affects all functional product requirements

**Stability:** Firm

**Quality Attributes:**

N/A

**Depends on:** N/A

Notes:

We removed scalability as a quality attribute since it does not actually describe a quality.