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| --- |
| **Ministry of education and training** |
| Software Requirement Specifications |
| Teacher Left Hand |
|  |
| |  |  | | --- | --- | | **TLH Team** | | | **Group Members** | Lê Phương Giang – 60046 – GiangLP60046  Nguyễn Hồ Hải – 00268 – HaiNH00268  Nguyễn Quốc Hùng – 00267 – HungNQ00267  Tô Hồng Quân – 60061 – QuanTH60061 | | **Supervisor** | Lâm Hữu Khánh Phương | | **Ext Supervisor** |  | | **Capstone Project code** | TLH | |
| **Ho Chi Minh, 13th Jan, 2012** |

**Record of Changes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Change Item | Description | By | Version |
| 12/1 | Create document |  | GiangLP | 0.1 |
| 18/1 | Add System Features | Add Teaching Plan Management. | HungNQ | 0.1 |
| 19/1 | Add System Features | Add Experience Note Management.  Add Teaching Method Management. | GiangLP, HaiNN | 0.1 |
| 25/1 | Add System Features | Add Knowledge Items Management. | QuanTH, | 0.1 |
| 30/1 | Modify System Features | Delete Experience Note Management.  Modify other System Feature. | GiangLP, QuanTH, HaiNN, HungNQ | 0.1 |
| 1/2 | Modify System Features | Modify System Feature Use case Diagram.  Add Software System Attributes | GiangLP, QuanTH | 0.1 |
| 2/2 | Add User Requirement Specification | Add all User Requirement Specification | QuanTH | 0.1 |
| 3/2 | Add External Interface Requirements | Add External Interface Requirements | QuanTH | 0.1 |
| 6/2 | Review all | Review all sessions. | PhuongLHK, GiangLP, QuanTH, HungNQ, HaiNN | 0.1 |
| 7/2 | Add System Requirements Specification. | Add Data Definition | QuanTH | 0.1 |
| 8/2 | Modify Documents | Correct all. | QuanTH | 0.1 |
| 10/2 | System features, Data structure and user requirement specification | Review & Update Documents | GiangLP | 0.1 |

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# User Requirement Specification

## Manage Teaching Plans.

Teaching Plan is the document which users (primary school teachers) create before the class to plan their teaching actions in the class lecture, workshops … etc. Teaching Plan main content, the Activities, is combinations of Teaching Method and Knowledge Item, answers the user question: what to teach the students and how to teach them.

### Teaching Plan Requirements:

A Teaching Plan has the following information:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Name | Data Type | Mandatory | Description |
| 1 | Class Level | Number | Required | The default value is set at the software first launch. In Vietnam, there are 5 class levels in for the primary school. User can modify when needed |
| 2 | Week | Numeric | Required | The order of the week in a school calendar. |
| 3 | Compose Date | Date | Optional | The date that user composes the Teaching Plan. |
| 4 | Teaching Date | Date | Optional | The date that this Teaching Plan is used in reality. |
| 5 | Subject | Text | Required | The Subject to which this Teaching Plan is belonged. |
| 6 | Topic No. | Numeric | Optional | The order of the topic is defined by user. This is the order of topic defined in the text book, regardless of order number of class session. |
| 7 | Topic | Text | Required | The Topic (corresponding to Toping Number) that this Knowledge Item is most related to. |
| 8 | Session Number | Numeric | Required | The count of the sessions (slots) of a subject in a year. |
| 9 | Objectives | Text | Optional | The objectives of the lesson. |
| 10 | Preparation | Text | Optional | Contain all the before-class activities and equipment that teachers and students will need for the coming lesson. |
| 11 | Activities | Complex | Required | The combination of Teaching Method with Knowledge Item in use. |
| 12 | Experience Note | Text | Optional | User’s notes on the teaching plan. Can be filled on creation teaching plan or added later |

### Teaching Plan Management Requirements:

* User can create a new Teaching Plan by filling a defined template in form of texts and images.
* Then User can save Teaching Plan in p format
* User can edit an existed Teaching Plan.
* User can export a complete Teaching Plan in the following format:
* Microsoft Word Documents : doc and docx
* Microsoft PowerPoint Documents: ppt and pptx to a specific type of content holding controls.   
  The simple content–holder matching rules are:

|  |  |  |  |
| --- | --- | --- | --- |
| No | Teaching Plan Items | Corresponding PowerPoint Content Holding Controls | Note |
| 1 | Outline | Outline | Each Activities corresponding to a slide. |
| 2 | Header | The first PowerPoint slide content | The header contains: Class Level, School Year, Week, Teaching Date, Subject, Topic No, Topic, Session Number |
| 3 | Knowledge Items | Corresponding Text Area and Images. |  |
| 4 | Teaching Method | Slide Note |  |

## Manage Teaching Methods.

The Teaching Method is the way user acts in the class lectures, workshops … to teach students with Knowledge Items. A Teaching Method can be used repeatedly in different class and lectures… User describes the method in their own words.

### Teaching Method Requirements

A Teaching Method (TM) has the following information:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Name | Data Type | Mandatory | Description |
| 1 | Name | Text | Required | The teaching method name. |
| 2 | Content | Text | Required | The content that is used to create Teaching Plan. |
| 3 | Team size | Numeric | Optional | The number of students per group when we apply this activity in reality. |
| 4 | Required Tools and Equipment | Text | Optional | The name of equipment which is need for this Teaching Method |
| 5 | Preferred Subject | Text | Optional | The Subject that this Teaching Method is preferred to be applied. |
| 6 | Preferred Class Level | Numeric | Optional | The Class Level that this Teaching Method is preferred to applied for. |
| 7 | Note | Text | Optional | User’s note for the teaching method |

### Teaching Method Managements Requirements

* User can input Teaching Methods in **text** (including notation for Knowledge insertion).
* User can edit existed Teaching Methods.
* User can delete existed Teaching Methods.
* User can find and view a Teaching Methods when he/she needs.

## Manage Knowledge Items (KI).

Knowledge Item is what the teacher teaches their students. There are 2 types of Knowledge Items: Theory and Practices. The user describes Knowledge Items in texts and images. They use Knowledge Item and Teaching Method to create Activities in a Teaching Plan.

### Knowledge Item Requirements

A Knowledge Item (KI) has the following information:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Name | Data Type | Mandatory | Description |
| 1 | Content | Text, Image | Required | The Knowledge Item content in text with format. |
| 2 | Class Level | Numeric | Required | The default value is set at the software first launch. In Vietnam, there are 5 class levels in the primary school |
| 3 | Subject | Text | Required | The Subject that this Knowledge Item is most related to. |
| 4 | Topic Number | Numeric | Optional | The order of the topic is defined by user. This is the order of topic defined in the text book, regardless of order number of class session. |
| 5 | Topic | Text | Required | The Topic (corresponding to Toping Number) that this Knowledge Item is most related to. |
| 6 | Type | Text | Optional | There are 2 main KI types: Theory (such as text, data…) and Practices (such as exercise, quiz, examination…). |

### Knowledge Item Management Requirements

* User can create a Knowledge Item in form of texts and images.
* User can edit existed Knowledge Items.
* User can delete existed Knowledge Items.

# System Requirement Specification (Specific Requirements)

## External Interface Requirements

### User Interfaces

* The software interface must be an implementation of GUI, support standard input controller controlled by keyboard and mouse.
* The GUI supports for English and Vietnamese. For future development, it should not be hardcoded in order to support Multilanguage.
* The interface should be divided into different zones to help users easily keep track of their process. There are 3 main zones: Teaching Plan Management Zone, Knowledge Item Management Zone, and Teaching Method Management Zone.

### Hardware Interfaces

The software supports the following hardware devices with minimum requirements:

Personal Computer.

* Processor 1 GHz
* RAM 512 MB.
* Storage Free: 100 MB

### Software Interfaces

Products run on .Net Framework 4.0 and higher.

|  |  |  |  |
| --- | --- | --- | --- |
| No | Software name | Version | Source |
| 1 | Microsoft Windows Operating System | XP SP3 or higher | Microsoft |
| 2 | .NET Framework | 4.0 | Microsoft |
| 3 | Visual Studio | 2010 | Microsoft |
| 4 | Expression Blender | 4 | Microsoft |
| 5 | WPF | 3.0 | Microsoft |

### Communications Protocol

None

## System Features

The system is divided in to 3 main features:

* Manage Teaching Plan
* Manage Teaching Method.
* Manage Knowledge Item (KI).



Figure 1- Overall User case Diagram

### Manage Teaching Plan

#### *Use Case Diagram*



Figure 2- Manage Teaching Plan Use case diagram

#### Use Case Specification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE - Create Teaching Plan Specification** | | | | |
| **Use-case No.** | UC\_TP\_001 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Create a Teaching Plan | | | |
| **Author** | HungNQ | | | |
| **Date** | 17/01/2012 | **Priority** | High | |
| **Actor:**  User  **Summary:**  User can create new Teaching Plan and save it.  **Goal:**  Teaching Plan is created and saved in .tlhx file format.  **Triggers**  Activate this use case when user asks the system to create new Teaching Plan.  **Preconditions:**  Start application successfully  **Post Conditions:**  There is a tlhx file created.  **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Ask the system to create new Teaching Plan | Display and enable screen area to input new Teaching Plan. | | 2 | Input heading information | Check for validation. | | 3 | Input Teaching Plan’s   * Heading * Opening * Activities * Experience Note |  | | 4 | Ask the system to save new Teaching Plan. | Display Save dialog. | | 5 | Input file name, choose saving location. | Validate inputs. | | 6 | Confirm Saving | Save the file. Close Save dialog Display the previous screen. |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Create new Teaching Plan | Display and enable screen area to input new Teaching Plan. | | 2 | Input heading, opening, activities and comments. | Check for validation | | 3 | Cancel creating new Teaching Plan | Ask user for Saving confirmation. | | 4 | Confirm not to save. | Discard all inputted information. Display the previous screen. |   **Exceptions:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Ask the system to create new Teaching Plan. | Display and enable screen area to input new Teaching Plan. | | 2 | Input opening, activities and comments. Skip input heading. | Check for validation | | 3 | Ask the system to save new Teaching Plan. | The system notifies user about missing heading. |   **Relationships:**  UC\_TP\_003 Export Teaching Plan  **Business Rules:**  None. | | | | |
| **Description:**  When user wants to create a new Teaching Plan, they only need to click “New Teaching Plan” menu and open Compose Teaching Plan panel. In order to create a new Teaching Plan, user needs to fill heading, opening, activities and comment. Heading is mandatory data field and others are optional.  If user saves, system will create new Teaching Plan with tlhx. file format. And by cancel saving, nothing is created. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE - Update Teaching Plan Specification** | | | | |
| **Use-case No.** | UC\_TP\_002 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Update Teaching Plan | | | |
| **Author** | HungNQ | | | |
| **Date** | 25/01/2012 | **Priority** | High | |
| **Actor:**  User  **Summary:**  User can update an existed Teaching Plan with extension .tlhx  **Goal:**  Update Teaching Plan successfully.  **Triggers**  Activate this use case when user opens a file with .tlhx extension  **Preconditions:**  There is file with extension .tlhx created by the application.  Load the file with extension .tlhx successfully.  **Post Conditions:**  Successfully save the teaching plan with modified contents  **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open an existed Teaching Plan. | Load the Teaching Plan.  Display and enable screen area to update Teaching Plan. | | 2 | Update Teaching Plan’s   * Heading * Opening, * Activities, * Experience Note. | Check for validation. | | 3 | Ask the system to save updated Teaching Plan. | Update the old Teaching Plan. |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open an existed Teaching Plan. | Load the Teaching Plan.  Display and enable screen area to update Teaching Plan. | | 2 | Update Teaching Plan’s   * Heading * Opening, * Activities, * Experience Note. | Check for validation. | | 2 | Cancel updating Teaching Plan content | Ask user for Saving confirmation. | | 3 | Confirm not to save. | Discard all changes to the teaching plan.  Back to the previous screen. |   **Exceptions:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open an existed Teaching Plan. | Load the Teaching Plan.  Display and enable screen area to update Teaching Plan. | | 2 | Update heading, opening, activities and comment. Leave mandatory heading fields blank. | Check for validation. | | 3 | Ask the system to save Teaching Plan. | The system notifies user about missing heading. |   **Relationships:**  UC\_TP\_003 Export Teaching Plan  **Business Rules:**  None | | | | |
| **Description:**  Users can update a Teaching Plan by opening a Teaching Plan with .tlhx extension and modify its content as they want, then save. If users cancel updating, the system will discard all changes since the last save.  The system can only load its own file type - tlhx. | | | | |
|  | | | | |
| **USE CASE - Export Teaching Plan Specification** | | | | |
| **Use-case No.** | UC\_TP\_003 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Export a Teaching Plan | | | |
| **Author** | HungNQ | | | |
| **Date** | 17/01/2012 | **Priority** | High | |
| **Actor:**  User  **Summary:**  User can export Teaching Plan into supported file type.  **Goal:**  Export Teaching Plan in the selected file type (doc, docx, ppt, pptx) successfully.  **Triggers**  Activate this use case when user asks the system to export a Teaching Plan.  **Preconditions:**  Start application successfully.  **Post Conditions:**  There is a file in the format user selected.  **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open a Teaching Plan | Display Teaching Plan. | | 2 | Ask the system to export the Teaching Plan. | Display Export dialog. | | 3 | Choose a desire format from supported file type list. |  | | 4 | Confirm Exporting. | Export the file in the selected format. Display the previous screen. |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open a Teaching Plan | Display Teaching Plan. | | 2 | Ask the system to export the Teaching Plan. | Display Export dialog. | | 3 | Enter file name.  Choose a desire format from supported file type list. |  | | 4 | Confirm not to save. | Discard all inputted information. Display the previous screen. |   **Exceptions:**  None  **Relationships:**  UC\_TP\_001 Create Teaching Plan  UC\_TP\_002 Update Teaching Plan  **Business Rules:**  None | | | | |
| **Description:**  When user wants to export a Teaching Plan into other supported file type, they only need to click “Export”, enter file name and choose desired file format.  By cancel exporting, nothing is exported. | | | | |

### Manage Teaching Method

#### Use case diagram



Figure 3 - Manage Teaching Method Use Case Diagram

#### Use case specification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE - Create New Teaching Method** | | | | |
| **Use-case No.** | UC\_TM\_001 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Create new Teaching Method | | | |
| **Author** | HaiNH | | | |
| **Date** | 19/01/2012 | **Priority** | High | |
| **Actor:**  User  **Summary:**  User can create a new Teaching Method and save it.  **Goal:**  Create a new Teaching Method and save it to DB successfully  **Triggers**  Activate this use case when user asks the system to create a new Teaching Method.  **Preconditions:**  Start application successfully  **Post Conditions:**  There is new Teaching Method in the database.  Data integrity is assured.  New Teaching Method is findable.  **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Ask the system to create new Teaching Method. | Display and enable screen area to input new Teaching Method | | 2 | Input Information   * Name * Team size * Required Tools and Equipment * Prefer Subject * Prefer Class Level * Note | Check for validation. | | 3 | Input Teaching Method Contents |  | | 4 | Ask the system to save Teaching Method | Save new Teaching Method to the database.  Display the previous screen |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Ask the system to create new Teaching Method. | Display and enable screen area to input new Teaching Method. | | 2 | Input Teaching Method as step 2 to step 5 in main scenario. | Follow input steps. | | 3 | Cancel creating new Teaching Method. | Ask user for Saving confirmation. | | 4 | Confirm not to save. | Discard all inputted information. Display the previous screen. |   **Exceptions:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Ask the system to create new Teaching Method. | Display and enable screen area to input new Teaching Method. | | 2 | Input information. Skip required data field. | Check for validation. | | 3 | Ask the system to save Teaching Method. | The system notifies user about missing field. |   **Relationships:**  None  **Business Rules:**  None | | | | |
| **Description:**  Users can create new Teaching Method and add it to database. The system provides user with a Create Teaching Method window with necessary fields. Users just need to fill the form and save it. Teaching method Name, Content are required fields. Others are optional. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE - Update Teaching Method** | | | | |
| **Use-case No.** | UC\_TM\_002 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Update Teaching Method | | | |
| **Author** | HaiNH | | | |
| **Date** | 19/01/2012 | **Priority** | High | |
| **Actor:**  User  **Summary:**  User can update Teaching Method and save it to database.  **Goal:**  Update Teaching Method’s successfully.  **Triggers**  Activate this use case when user asks the system to update an existed Teaching Method.  **Preconditions:**  Start application successfully.  There is an added Teaching Method.  The Teaching Method needs to be updated is found.  **Post Conditions:**  Teaching Method content is updated in the DB successfully  Data integrity is assured.  Teaching Method is findable.  **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open an existed Teaching Method. | Load the Teaching Method.  Display and enable screen area to update Teaching Method. | | 2 | Update Information of   * Name * Brief description * Required Tools and Equipment * Prefer Subject * Prefer Class Level * Note | Load prepared data from database to controls. Check for validation. | | 3 | Update Teaching Method Contents |  | | 4 | Ask the system to save updated Teaching Method. | Save updated Teaching Method to the database.  Display the previous screen |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Start with step 1 to step 3 in main success scenario. | Follow with step 1 to step 3 in main success scenario. | | 2 | Cancel updating Teaching Method. | Ask user for Saving confirmation. | | 3 | Confirm not to save. | Discard all inputted information. Display the previous screen. |   **Exceptions:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Start with step 1 to step 3 in main success scenario. | Follow with step 1 to step 3 in main success scenario. | | 2 | Input information. Skip required data field. |  | | 3 | Ask the system to save Teaching Method. | The system notifies user about missing field. |   **Relationships:**  UC\_TM\_004 – Search Teaching Method  **Business Rules:**  None | | | | |
| **Description:**  When user wants to update an existed Teaching Method, they can update an existed Teaching Method when working on Manage Teaching Method Module. In order to update an existed Teaching Method, user needs to find or navigates to select the target Teaching Method. The system provides user with an Update Teaching Method window with the method’s content. User can modify it just like creating a new method and then save it. The method will be updated into database. If user cancels modification, the method will be left unchanged. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE - Delete Teaching Method** | | | | |
| **Use-case No.** | UC\_TM\_003 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Delete Teaching Method | | | |
| **Author** | HaiNH | | | |
| **Date** | 19/01/2012 | **Priority** | Normal | |
| **Actor:**  User  **Summary:**  Users can delete Teaching Method from the database.  **Goal:**  Delete a Teaching Method from database.  **Triggers**  Activate this use case when user asks the system to delete Teaching Methods.  **Preconditions:**  Start application successfully.  There is at least an existed Teaching Method.  **Post Conditions:**  All the information of deleted Teaching Method is deleted successfully.  Data integrity is assured**.**  **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Select the target Teaching Method. | Focus on the selected Teaching Method.  Display the selected Teaching Method for user to view. | | 2 | Ask the system to delete selected Teaching Method. | Ask user to confirm deletion | | 3 | Confirm to delete | Delete the Teaching Method from the database.  Display the previous screen |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Select the target Teaching Method. | Focus on the selected Teaching Method.  Display the selected Teaching Method for user to view. | | 2 | Ask the system to delete selected Teaching Method. | Ask user to confirm deletion | | 3 | Confirm NOT to delete | The teaching method is left unchanged  Display the previous screen. |   **Exceptions:**  None  **Relationships:**  UC\_TM\_004 – Search Teaching Method  **Business Rules:**  None | | | | |
| **Description:**  When user wants to delete one or many Teaching Methods, they can delete those by selected them when working on Manage Teaching Method Module . In order to delete, user needs to navigate to or found the target Teaching Method. The system will ask for deleting confirmation before delete.  If user confirms to delete, the system will delete all information and cached information related (if any) to these Teaching Methods. Otherwise, they are left unchanged.  Any deleted Teaching Method is NOT recoverable. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE - Search Teaching Method** | | | | |
| **Use-case No.** | UC\_TM\_004 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Search Teaching Method | | | |
| **Author** | HaiNH | | | |
| **Date** | 19/01/2012 | **Priority** | High | |
| **Actor:**  User  **Summary:**  User can find a specific or a collection of Teaching Methods satisfied search condition.  **Goal:**  Find expected Teaching Methods that best matched with search conditions.  **Triggers**  Activate this use case when user asks the system to search Teaching Method.  **Preconditions:**  Start application successfully.  **Post Conditions:**  Data integrity is assured.  **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open Teaching Method Management Module. | Display and enable screen area to search for Teaching Method. | | 2 | Enter search condition. |  | | 3 | Ask the system to search. (Confirm search condition). | Display final results. |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open Teaching Method Management Module. | Display and enable screen area to search for Teaching Method. | | 2 | Blank keyword and no search condition |  | | 3 | Ask the system to search | Display all Teaching Methods. |   **Exceptions:**  None  **Relationships:**  UC\_TM\_002 – Update Teaching Method  UC\_TM\_003 – Delete Teaching Method.  UC\_TP\_001 – Create Teaching Plan.  **Business Rules:**  None | | | | |
| **Description:**  User can look for a Teaching Method by providing search condition. The system will return a list of results that meet user needs. The search default conditions are based on the context of each scenario. If user chooses to search with no condition, the system will return all Teaching Methods. | | | | |



### Manage Knowledge Item

#### Use Case Diagram



Figure 4 - Manage Knowledge Items Use case diagram

#### Use Case Specification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE - Create Knowledge Item.** | | | | |
| **Use-case No.** | UC\_KI\_001 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Create Knowledge Item. | | | |
| **Author** | QuanTH | | | |
| **Date** | 24/01/2012 | **Priority** | High | |
| **Actor:**  User  **Summary:**  User can create a new Knowledge Item (KI).  **Goal:**  Add a new knowledge item successfully.  **Triggers**  Active this use case when user asks the system to create a new KI  **Preconditions:**  Start application successfully.  **Post Conditions:**  New KI is created successfully  Data integrity is assured.  KI is findable.  **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Ask system to create new KI. | Display and enable screen area to input KI.  Load Subject List to Subject input controller. | | 2 | Input KI classification information:   * Select Subject from pre-defined list | Load Topics of selected Subject. | | 3 | Continue input KI classification information:   * Class Level * Topic Number * Topic, * Type | Validate input. | | 4 | Input KI Content |  | | 5 | Ask the system to save information inputted. | Save the inputted information to the database. |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Ask the system to create new Knowledge Item. | Display and enable screen area to input new Knowledge Item. | | 2 | Input Knowledge Item as step 2 to step 4 in main scenario. | Follow input steps. | | 3 | Cancel creating new Knowledge Item. | Ask user for Saving confirmation. | | 4 | Confirm not to save. | Discard all inputted information. Display the previous screen. |   **Exceptions:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Ask the system to create new Knowledge Item. | Display and enable screen area to input new Knowledge Item. | | 2 | Ask the system to save information inputted without filling all required fields, either:   1. Subject, 2. Class Level 3. Topic Number, 4. Topic, 5. Type. | Check for validation. | | 3 | Ask the system to save new KI. | The system notifies user about missing field. |   **Relationships:**  UC\_TM\_001 Create Teaching Plan.  **Business Rules:**  None | | | | |
| **Description:**  Users can create a new KI when working on Manage Knowledge Item. In order to create a new KI, user need to full fill mandatory data field including: Content, Subject, Class Level, Topic Number, Topic, and Type. Others are optional.  If user confirms to save, the system will save this new KI. And when user makes cancelation while creating, all data fields will be clear, nothing is saved. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **USE CASE - Update Knowledge Item.** | | | | |
| **Use-case No.** | UC\_KI\_002 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Update Knowledge Item. | | | |
| **Author** | QuanTH | | | |
| **Date** | 24/01/2012 | **Priority** | High | |
| **Actor:**  User  **Summary:**  Use can use case allows user to update (edit) an existed Knowledge Item (KI).  **Goal:**  Update an existed KI successfully.  **Triggers**  Active this use case when user asks the system to update a selected KI.  **Preconditions:**  Start application successfully.  There is an added KI.  The KI needs to be updated is found.  **Post Conditions:**  Selected KI is updated successfully.  Data integrity is assured.  **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open an existed KI. | Load the KI successfully.  Display and enable screen area to update KI; enable update-able data fields. | | 2 | Update KI Content |  | | 3 | Ask the system to save updated KI. | Save the updated KI to the database.  Display the previous screen |   **Alternative Scenario**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open an existed KI. | Load the KI successfully.  Display and enable screen area to update KI; enable update-able data fields. | | 2 | Update KI Content |  | | 3 | Cancel updating KI. | Ask user for Saving confirmation. | | 4 | Confirm not to save. | Discard all inputted information.  Display the previous screen. |   **Exception :**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open an existed KI. | Load the KI successfully.  Display and enable screen area to update KI; enable update-able data fields. | | 2 | Update KI Content |  | | 2 | Input information. Skip required data field. |  | | 3 | Ask the system to save Teaching Method. | The system notifies user about missing field. |   **Relationships:**  UC\_KI\_004 Search Knowledge Item.  **Business Rules:**  None | | | | |
| **Description:**  When user wants to update an existed KI, they can update an existed KI when working on Manage Knowledge Item Module. In order to update an existed KI, user needs to find or navigate to select the target KI. The system provides user with an Update Knowledge Item window with the method’s content. User can modify it just like creating a new KI and then save it. The KI will be updated into database. If user cancels modification, KI will be left unchanged. | | | | |

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| **USE CASE - Delete Knowledge Item.** | | | | |
| **Use-case No.** | UC\_KI\_003 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Delete Knowledge Item. | | | |
| **Author** | QuanTH | | | |
| **Date** | 24/01/2012 | **Priority** | Medium | |
| **Actor:**  User  **Summary:**  Users can delete KIs from the database.  **Goal:**  Delete the selected KIs successfully.  Data Integrity is assured.  **Triggers**  Active this use case when user selects KIs and ask the system to delete those.  **Preconditions:**  Start application successfully.  There is at least one KI in the database.  **Post Conditions:**  All the information of deleted KIs is deleted successfully  Data integrity is assured.  **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Select the target KI. | Focus on the selected KI.  Display the selected KI for user to view. | | 2 | Ask the system to delete selected KIs. | Ask user to confirm deletion. | | 3 | Confirm to delete. | Delete the KIs from the database.  Display the previous screen |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Select the target KI. | Focus on the selected KI.  Display the selected Teaching Method for user to view. | | 2 | Ask the system to delete selected KI. | Ask user to confirm deletion | | 3 | Confirm NOT to delete | KI is left unchanged  Display the previous screen. |   **Exceptions:**  None  **Relationships:**  Use case – UC\_KI\_005 View Knowledge Item  Use case – UC\_TM\_001 Create Teaching Plan  **Business Rules:**  None | | | | |
| **Description:**  When user want to delete one or many KIs, they can delete those by selected them when working on Manage Knowledge Item Module . In order to delete, user need to navigate to or found the target KI. The system will ask for deleting confirmation before delete.  If user confirms to delete, the system will delete all information and cached information related (if any) to these KIs. Otherwise, they are left unchanged.  Any deleted KI is NOT recoverable. | | | | |

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| **USE CASE - Search Knowledge Item.** | | | | |
| **Use-case No.** | UC\_KI\_004 | **Use-case Version** | | 1.0 |
| **Use-case Name** | Search Knowledge Item. | | | |
| **Author** | QuanTH | | | |
| **Date** | 24/01/2012 | **Priority** | Medium | |
| **Actor:**  User  **Summary:**  This use case allows user to find a specific or a collection of KIs satisfied search condition.  **Goal:**  Found expected KI that best match with search condition.  **Triggers**  Active this use case when user asks the system to search KI.  **Preconditions:**  Start application successfully.  **Post Conditions:**  Data integrity is assured.  **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open Knowledge Item Management Module. | Display and enable screen area to search for KI. | | 2 | Enter search condition. |  | | 3 | Ask the system to search. (Confirm search condition). | Display final results. |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Open Knowledge Item Management Module. | Display and enable screen area to search for KI. | | 2 | Blank keyword and no search condition |  | | 3 | Ask the system to search | Return all KIs. |   **Exceptions 1:**  None  **Relationships:**  UC\_KI\_002 Update Knowledge Item.  UC\_KI\_003 Delete Knowledge Item.  UC\_TM\_001 Create Teaching Plan  **Business Rules:**  None | | | | |
| **Description:**  User can find KIs when working on Manage Knowledge Item Module. The system will return a list of results that meet user needs. The search default conditions are based on the context of each scenario. If user chooses to search with no condition, the system will return all KIs. | | | | |







## Software System Attributes

### Usability

* User can easily learn how to use the software by reading User Manual Guide or Tutorial Videos
* The learning is also based on their basics experience of using computer, equivalent to Level A of Vietnamese Standard Information Technology Certification System.
* While being in used, the software allows user to correct their errors without restarting the workflow or sudden terminating its running.
* The software provides a warning mechanism for tasks that probably create errors or data conflicts.
* All the controls that are not to be used in the context must be hidden or disabled.
* Interface need to attract the attention of users to the working area.
* The look and feel of the UI should be neatly.
* The UI components are clear defined, user friendly, understandable, should be customizable in position and size.
* 70% of the GUI area is used for displaying the on-going work.
* Working area should have simple, less attracting background. 10% of it is used for controls.
* All controls must have tooltips.
* Controls should be displayed by pictures yet still keep it learnability.

### Reliability

* Accuracy: The software exports file with data in desired format based on user input.
* Initial data should be analyzed and collected carefully and correctly.
* Not conflict with other software
* Maximum Bug Rate: maximum of 2 bugs/ KLOC.
* The whole software shall satisfy those metrics

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| No | Defect severity | Maximum number | Description |
| 1 | Fatal | 1 | Bug causes system crash or data loss |
| 2 | Severe | 1 | Bug causes major functionality or other severe problems; product crashes in obscure cases |
| 3 | Minor | 3 | Bug causes minor functionality problems, may affect "fit and finish". |
| 4 | Cosmetic | 5 | Bug contains typos, unclear wording or error messages in low visibility fields. |

### Security

None

### Maintainability

**Coding standards and naming conventions:**

* Output of the project must include coding standards and naming conventions documentations. Implementation code must be easy to maintain.
* All code must be clearly commented, including class, method documentations.
* If some components are reused, the documentations of those components must also be included.

**Design:**

* The design of the system must be loosely coupled that changes on some modules will not affect others.
* Data Structure should be designed in view of extendable and scalable.

**Logging:**

* All the errors should be logged, supporting for bug fixing and maintenance.
* All strange or sensitive situations should also be logged.

### Portability

* The software should be packaged into a self-extract installer.
* The data can be imported and exported independently.

### Performance

#### Respond time

The responding time varies from task.

* The average respond time: 10s/task
* The maximum respond time: 1.5 minutes/task

With the heavy load task, the software suggests users divide their works into smaller patch in order to reduce each workload.

#### Throughput

The software allows user to modifying only 1 Knowledge Item, only 1 Teaching Method at a time. However, while modifying, user can view the other Knowledge Items or Teaching Methods in read-only mode.

## Data Definition

Teaching Plan Data Definition.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field name** | **Description** | **Read**  **Only** | **Mandatory** | **Data Type** | **Length** | **Default** |
| **1** | Class Level | In Vietnam, there are 5 class levels in for the primary school. The default value is set at the software first launch. User can modify when needed. | N | Y | Number | Fixed | N/A |
| **2** | Week | The order of the week in a school calendar. | N | Y | Numeric | Fixed | N/A |
| **3** | Compose Date | The date that user composes the Teaching Plan. | N | N | Date Time | Fixed | Current System Date |
| **4** | Teaching Date | The date that this Teaching Plan is used in reality. | N | N | Date Time | Fixed | N/A |
| **5** | Subject | The Subject to which this Teaching Plan is belonged. | N | Y | Text | N/A | N/A |
| **6** | Topic No. | The order of the topic is defined by user. This is the order of topic defined in the text book, regardless of order number of class session. | N | N | Numeric | Fixed | N/A |
| **7** | Topic | The Topic (corresponding to Toping Number) that this Knowledge Item is most related to. | N | Y | Text | N/A | N/A |
| **8** | Session Number | The count of the sessions (slots) of a subject in a year. | N | Y | Numeric | N/A | N/A |
| **9** | Objectives | The objectives of the lesson. | N | N | Text | N/A | N/A |
| **10** | Preparation | Contain all the before-class activities and equipment that teachers and students will need for the coming lesson. | N | N | Text | N/A | N/A |
| **11** | Activities | The combination of Teaching Method with Knowledge Item in use. | N | Y | Complex | N/A | N/A |
| **12** | Experience Note | User’s notes on the teaching plan. Can be filled on creation teaching plan or added later | N | N | Text | N/A | N/A |

Teaching Method Data Definition.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field name** | **Description** | **Read**  **Only** | **Mandatory** | **Data Type** | **Length** | **Default** |
| **1** | Name | The teaching method name. | N | Y | Text | N/A | N/A |
| **2** | Content | The content that is used to create Teaching Plan. The content includes place for inserting Knowledge Item. | N | Y | Text | N/A | N/A |
| **3** | Team size | The number of students per group when we apply this activity in reality. | N | Y | Numeric | Fixed | 1 |
| **4** | Required Tools and Equipment | The name of equipment which is need for this Teaching Method | N | N | Text | N/A | N/A |
| **5** | Prefer Subject | The Subject that this Teaching Method is preferred to applied for. | N | N | Text | N/A | N/A |
| **6** | Prefer Class Level | The Class Level that this Teaching Method is preferred to applied for. | N | N | Numeric | Fixed | N/A |
| **7** | Note | User’s note about the teaching method | N | N | Text | N/A | N/A |

Knowledge Item Data Structure.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field name** | **Description** | **Read**  **Only** | **Mandatory** | **Data Type** | **Length** | **Default** |
| **1** | Content | The Knowledge Item content in text with format. | N | Y | Text, Image, | N/A | N/A |
| **2** | Class Level | The default value is set at the software first launch. In Vietnam, there are 5 class levels in the primary school | N | Y | Numeric | Fixed | N/A |
| **3** | Subject | The Subject that this Knowledge Item is most related to. | N | Y | Text | N/A | N/A |
| **4** | Topic Number | The order of the topic is defined by user. This is the order of topic defined in the text book, regardless of order number of class session. | N | N | Numeric | Fixed | N/A |
| **5** | Topic | The Topic (corresponding to Toping Number) that this Knowledge Item is most related to. | N | Y | Text | N/A | N/A |
| **6** | Type | There are 2 main KI types: Theory (such as text, data…) and Practices (such as exercise, quiz, examination…). | N | N | Text | N/A | Theory |

# References

[1] Microsoft Developer Network Library, 2012, UML Use Case Diagrams: <http://msdn.microsoft.com/en-us/library/dd409427.aspx>