**VIRTUAL LEARNING ENVIRONMENT**

**REQUIREMENTS GATHERING**

**AND**

**PROBLEM DESCRIPTION**

**FOR**

**VIRTUAL LEARNING**

**ENVIRONMENT**

**Software Requirement Specification For Virtual Learning Environment (VLE)**

**INTRODUCTION**

**FOR**

**VIRTUAL LEARNING ENVIRONMENT**

1. **Introduction**
   1. **Purpose**
   2. **Scope**
   3. **Definitions, acronyms and abbrevations**
   4. **References**
   5. **Document overview**

**Introduction:**

A **virtual learning environment** (**VLE**) is a Web-based platform for the digital aspects of courses of study, usually within educational institutions.

* 1. **Purpose**

VLE is a safe and secure environment that is reliable, available online and accessible to a wide user base. A user should be able to move between learning platforms throughout their life with no loss of access to their personal data. The concept of a learning platform accommodates a continuously evolving description of functionality changing to meet the needs of the user.

* 1. **Scope**

We describe what features are in the scope of the software and what are not in

the scope of the software to be developed.

**In Scope:**

1. Information regarding the course syllabus, course duration and so on.

2. Giving alerts regarding the submission of assignments.

3. Their performance should be mailed after every exam.

4. Giving alerts to the user regarding if any new video is uploaded regarding his course.

5. user authentication.

**Out Scope:**

1. Never describes about their last login.
2. Never describes about the amount of time used.
3. Videos cannot be downloaded.
   1. **Definitions, Acronyms And Abbreviations**:

Definitions

a. Virtual: virtual means not physically existing as such but made by software to appear to do so

b. Security: A set of all transactions pertaining to a company share or a bank account.

c. Users: Student,faculty,Management,Admin.

d. Admin: Application administrator responsible for application management.

e. Management: Registered users which manage the entire working of Virtual Classroom.

f. Faculty: Registered teachers of VCS to teach the students studying in VCS.

g. Students: Registered users of VCS as the students of the classroom.

h. Lecture: A Video/PowerPoint Presentation/Notes on any subject/topic related to any course.

i. Discussion Time: A scheduled time slot during which a faculty will be available (online) for discussion with students and their doubt clearance.

j. Assignment: Two types of assignments :

Self-Practice --> The one's those are not to be submitted and will just work as practice exercises.

Submission Assignments -->These are to be submitted within a given a deadline.

k. Examination: Test conducted to evaluate the performance of a student in a particular subject/course.

l. Attendance: Statistical report of a student showing the number of classes attended by him/her in comparison to total classes being held.

m. Progress Report: Report showing the progress of a student after the examination is being conducted.It will be a cumulative course report.

Acronyms and abbreviations

VLE :Virtual Learning Environment

HTML: Hypertext Markup Language.

EJB: Enterprise Java Beans.

J2EE: Java 2 Enterprise Edition

HTTP: Hypertext Transfer Protocol

HTTPS: Secure Hypertext Transfer Protocol

PHP: Hypertext Pre-processor

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| --- |
|  |

* 1. **References:**

1. [www.wikipedia.com](http://www.wikipedia.com)
2. [www.nptel.ac.in](http://www.nptel.ac.in)
3. [www.edx.org](http://www.edx.org)

Books referred:

1. Ugrasen Suman
2. Pressman

**1.5 Overview of the document**

The rest of this SRS is organized as follows: Section 2 gives an overall description of the software. It gives what level of proficiency is expected of the user, some general constraints while making the software and some assumptions and dependencies that are assumed. Section 3 gives specific requirements which the software is expected to deliver. Functional requirements are given by various use cases. Some performance requirements and design constraints are also given. Section 4 gives some possible future extensions of the system. Finally the appendices in Section 5 describes the list of references.

**GENERAL DESCRIPTION**

**FOR**

**VIRTUAL LEARNING ENVIRONMENT**

1. **General description**
   1. **Product Perspective**
   2. **Product Functions**
   3. **User Characteristics**
   4. **General Constraints**
   5. **Assumptions and Dependencies**

**2.1 Product Perspective**

Virtual learning environment should enable the users to develop a rich multimedia presentation combining presentation slide, video and images. This software can be used for developing courses that can later be released on the Internet or delivered in some other electronic medium.

**2.2 Product Functions**

VLE should support the following use cases:

|  |  |  |
| --- | --- | --- |
| **Class of use cases** | **Use cases** | **Description of use cases** |
| Use case related to Domain Name. | Domain name | User initiates domain name of the website. |
| Use cases related to  system authorization. | |  | | --- | | Login | | Change Password | | |  | | --- | | Login into VLE. | | Change VLE password. | |
| Use case related to Update Profile. | View Profile | User can View and update self profile. |
| Use case related to Search Course. | Search Course | User searches for a course. |
| Use case related to Course Registeration. | Course Registeration | User register for a course. |
| Use case related to Syllabus. | View Syllabus | User Can view the syllabus pertaining to the registered course. |
| Use case related to Discussion. | View Discussion time | User can view the discussion time scheduled by various faculties. |
| Use case related to Notices. | View Notices | User can view the files consisting assignments etc. |
| Use case related to Taking Test. | Appear for test | User can appear for test for registered subject. |
| Use case related to Generating Report. | View Report | User can view his report for taken test. |

**2.3 User Characteristics**

1. The user should be familiar with the particular course he/she want to undertake.

2. The user must require basic internet skills.

**2.4 Principal Actors**

The principal actors are User, Parents, Faculty.

**2.5 General Constraints**

1.To access VLE the system requires internet connection.

**2.6 Assumptions and dependencies**

a. Full working of VLE is dependent on the availability of Internet connection.

**SPECIFIC REQUIREMENTS FOR**

**VIRTUAL LEARNING ENVIRONMENT**

1. **Specific Requirements**
   1. **Functional requirements**
      1. **Functional requirement 1**
         1. Introduction
         2. Input
         3. Processing
         4. Output
      2. **Functional requirement 8**
   2. **External interface requirements**
   3. **Performance requirements**
   4. **Design constraints**
   5. **Security requirements**
   6. **Maintainability requirements**
   7. **Reliability requirements**
   8. **Availability requirements**
   9. **Database requirements**
   10. **Documentation requirements**
   11. Operational requirements
   12. **Site adaption constraints**

**3. Specific Requirements**

**3.1 Functional Requirements:**

**3.1.1 Functional requirement 1:**

Course Registration

***3.1.1.1 Introduction:***

User has to register for a particular course inorder to view the course syllabus, course details, appear for test and to view the results.

***3.1.1.2 Input:***

The user has to fill all the details of the user in the registration form. The necessary fields are contact number, Aadhaar no, phone number, E-mail id and so on.

***3.1.1.3 Processing:***

Validations checks are performed on the input data by the user/administrator like:

* Mandatory fields should not be kept empty.
* All the entries in database should be as per syntax.

After entering the details the user clicks on submit button, then the information is stored in database.

***3.1.1.4 Output:***

A dialog box containing “Registration Sucessful” will be displayed, otherwise displays an error message.

**3.1.2 Functional requirement 2:**

Login

***3.1.2.1 Introduction:***

The login page is required for the user to access the details about the courses available.

***3.1.2.2 Input:***

User name along with password should be given.

***3.1.2.3 Processing:***

User has to provide unique userid and password to get into the homepage to access his account. These names are checked in the database. If the given username and password are matched the they can view the homepage otherwise they need to enter the details again.

***3.1.2.4 Output:***

The user is redirected into his account, otherwise an alert message will be given to the user “please enter valid username or password”.

**3.1.3 Functional requirement 3:**

Change password

***3.1.3.1 Introduction:***

This is required for the users who forget their password then the user can change the password with the help of this page.

***3.1.3.2 Input:***

User should enter his username and the last password he remembers.

***3.1.3.3 Processing:***

User initiates the password change command. User is prompted for the old password, new password and confirm new password. After filling all the fields he clicks on the submit button, then the user password will be stored in the database. User gets a message to his E-mail that password was changed.

***3.1.3.4 Output:***

If the new password and confirm password are matched then new password will be updated, otherwise an error message containing “password mismatch” will be displayed on the screen.

**3.1.4 Functional requirement 4:**

Search Course

***3.1.4.1 Introduction:***

This is used to display the details of the particular course asked/requested by the user.

***3.1.4.2 Input:***

After the user login, then the user should searches for a particular course in the search box.

***3.1.4.3 Processing:***

User clicks on the search box. System asks for the user to enter a course name. User enters by the course name and lick on search icon. If the given course exists in the database then the details of the course will be displayed.

***3.1.4.4 Output:***

The output will be the content regarding the course entered by the user. If the course name does not exist then it displays “course does not exists”.

**3.1.5 Functional requirement 5:**

View Profile

***3.1.5.1 Introduction:***

If the user wants to view/edit his profile then there is an edit button, on clicking the edit button user can edit his profile.

***3.1.5.2 Input:***

First the user must be logged in using the username.

***3.1.5.3 Processing:***

The user on clicking on the edit button, then the user can be able to edit all his details like e-mail id, contact number and so on.

***3.1.5.4 Output:***

After making all the required changes then the user clicks on “save changes” button, then the corresponding changes will be made to the database.

**3.1.2 Functional requirement 2:**

View notices

***3.1.6.1 Introduction:***

View notices module is used to view day to day news and events. It displays the list of events scheduled according to the date.

***3.1.6.2 Input:***

The user must be logged in with corresponding username and password.

User initiates My diary icon.

***3.1.6.3 Processing:***

When user initiates My diary icon the corresponding list of events from the database are displayed on the screen according to the date modified. It displays curriculum events and list of my events.

***3.1.6.4 Output:***

My dairy displays list of curriculum events according to the date i.e., list of assignments scheduled for the user and list of my events i.e., list of assignments submitted by the user.

**3.1.7 Functional requirement 7:**

View Report

***3.1.7.1 Introduction:***

When user clicks on the Assignment Grades, it displays the grades assigned to the assignment submitted by the user.

***3.1.7.2 Input:***

User must be logged in and should submit at least one of the assignment to the date given.

***3.1.7.3 Processing:***

As the user initiates Grades icon, it displays the list of grades assigned to the assignments submitted by the user. It displays only the grades but not percentage or rank.

***3.1.7.4 Output:***

The output will be the grades, if the user does not submit any assignment by default “only grades are visible” will be displayed.

**3.1.8 Functional requirement 8:**

Add a course

***3.1.8.1 Introduction:***

This icon is for the administration to add a course to make it accessible for the users.

***3.1.8.2 Input:***

It takes course name and course title as input and there is a check box enable viewing.

***3.1.8.3 Processing:***

After all the input values are given administrator creates the course by clicking on create button. Here the course name and course title are mandatory columns. These courses can also be modified by the tutors.

***3.1.8.4 Output:***

The output will be the course is created with the given name and title and if the course name already exists then it displays a message “course already exists”.

**3. Specific Requirements**

**3.1 Functional Requirements**

*Use case related to domain name:*

**Use Case 1:** domain name

*Primary Actor*: User

*Pre Condition*: Internet connection available.

*Main Scenario* :

1. User initiates domain name of the website.
2. Initially home page of the website should be displayed. User is also asked for the initial login and password.
3. User specifies the home directory and login/password.
4. If the user is new registration is available at the home page. System creates the working files in the specified home directory. Working files contain:
   1. Authorization information.

*Alternate Scenario*:

5(a). Network failure.

5(a)1. If the domain name is wrong another webpage is displayed.

*Use cases related to system authorization:*

**Use Case 2**: Login

*Primary Actor*: User

*Pre Condition*: User must be registered first.

*Main Scenario* :

1. Start the application. User prompted for login and password.
2. User gives the login and password.
3. System does authentication.
4. Main screen is displayed.

*Alternate Scenario* :

4(a). Authorization fails

4(a)1. Prompt the user that he typed the wrong.

4(a)2. Allow him to re-enter the password.

**Use Case 3:** Change Password

*Primary Actor*: User

*Pre Condition*: User logged in

*Main Scenario* :

1. User initiates the password change command.

2. User is prompted for old password, new password and confirm new password.

3. User gives the old password, new password and confirm new password.

4. System does authentication.

5. New password is registered with the system.

*Alternate Scenario* :

4(a). Authorization fails

4(a)1. Prompt the user that he typed the wrong password

4(a)2. Allow him to re- enter the password.

4(b). New password and confirm new password do not match.

4(b)1. Allow him to re-enter the attributes.

**Use Case 4:** View/Update Profile

*Primary Actor*: User

*Pre Condition*: User should register to the page.

*Main Scenario* :

1. User can View and update self profile ( Password, Name, Date of Birth, Address, Email Ids, Contact Numbers etc.).

*Alternate Scenario:*

1. User cannot view if he/she is not registered.

**Use Case 5:** Search Course

*Primary Actor*: User

*Pre Condition*: User logged in

*Main Scenario* :

1. User searches for a course.
2. User gets basic knowledge about the selected course.

*Alternate Scenario* :

1. Webpage cannot be displayed if the selected course is not present.

**Use Case 6:** Course Registration

*Primary Actor*: User

*Pre Condition*: User should register to the page.

*Main Scenario* :

1. User selects course to be registered.
2. User can get full knowledge about the selected course.
3. Details about the course should be sent with an E-mail to a respective person.

*Alternate Scenario* :

1. Course registration is not possible if user did not register to the page.

**Use Case 7:** View Syllabus

*Primary Actor*: User

*Pre Condition*: User should register to the page.

*Main Scenario* :

1. User Can view the syllabus pertaining to the registered course.

*Alternate Scenario:*

1. User cannot view if he/she is not registered.

**Use Case 8:** View Discussion time

*Primary Actor*: User

*Pre Condition*: User should register to the page.

*Main Scenario* :

1. User can view the discussion time scheduled by various faculties .
2. User can view their test schedules.

*Alternate Scenario:*

1. User cannot view if he/she is not registered.

**Use Case 9:** View notices

*Primary Actor*: User

*Pre Condition*: User should register to the page.

*Main Scenario* :

1.User can view the files consisting assignments etc.

1. User can read notices uploaded by higher authorities.

*Alternate Scenario:*

1. User cannot view if he/she is not registered.

**Use Case 10:** Appear for test

*Primary Actor*: User

*Pre Condition*: User should register to the subject.

*Main Scenario* :

1. User who completes his part of the syllabus of a particular subject/course and have done a particular set of assignments related to that subject/course can appear for the test.

*Alternate Scenario:*

1. User cannot view if he/she is not registered.

**Use Case 11:** View Report

*Primary Actor*: User

*Pre Condition*: User should take a test.

*Main Scenario* :

1. User can View his/her progress report.

*Alternate Scenario:*

1. User cannot view his/her report if he/she did not appear for the test.

**3.2 External Interface Requirements**

The user screen is split vertically into two panes. The left pane contains the List of courses, which expands and contracts as per user action. The right pane displays the notifications regarding the user logged in.

**3.3 Performance Requirements**

1. The system should be easy to handle.

2. System should give expected performance results.

3. The response time should be small.

**3.5 Security Requirements**

1. We are going to develop a secured database.

2. Depending upon the category of user the access rights are decided.

**3.6 Safety Requirements**

The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup.

**5.Appendix**

Appendix A:

1. *Britain, Sandy; Liber, Oleg (1999).*[*"A Framework for Pedagogical Evaluation of Virtual Learning Environments"*](http://www.webarchive.org.uk/wayback/archive/20140614113500/http:/www.jisc.ac.uk/media/documents/programmes/jtap/jtap-041.pdf)*(PDF). JISC Technology Applications Programme (Report 41). Retrieved 1 February 2015.*
2. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-2) *Weller, Martin (2007). Virtual learning environments: using, choosing and developing your VLE. London: Routledge. pp. 4–5.*[*ISBN*](https://en.wikipedia.org/wiki/International_Standard_Book_Number)[*9780415414302*](https://en.wikipedia.org/wiki/Special:BookSources/9780415414302)*.*
3. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-3) *Masterman, Liz (2013). "The challenge of teachers' design practice". Written at London. In Beetham, Helen; Sharpe, Rhona. Rethinking pedagogy in a digital age. Oxford: Routledge. p. 65.*[*ISBN*](https://en.wikipedia.org/wiki/International_Standard_Book_Number)[*978-0-415-53997-5*](https://en.wikipedia.org/wiki/Special:BookSources/978-0-415-53997-5)*.*
4. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-4) [*"LMS Data – The First Year Update"*](http://edutechnica.com/2014/09/23/lms-data-the-first-year-update/)*. Edutechnica. 23 September 2014. Retrieved 1 February 2015.*
5. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-5) [*"virtual learning environment (VLE) or managed learning environment (MLE)"*](http://whatis.techtarget.com/definition/virtual-learning-environment-VLE-or-managed-learning-environment-MLE)*. WhatIs.com. Retrieved June 23, 2016.*
6. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-6) *Safa Naser Husain (2012).*[*"Online communication between home and school. Case study: Improving the usability of the Unikum e-service in the primary schools of Tierp municipality"*](http://www.diva-portal.org/smash/get/diva2:603927/FULLTEXT01.pdf)*(PDF). Department of Informatics and Media.*
7. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-JISC2007_7-0) [*"Briefing Paper 1: MLEs and VLEs Explained"*](http://www.jisc.ac.uk/whatwedo/programmes/programme_buildmle_hefe/mle_lifelonglearning_info/mle_briefingpack/mle_briefings_1.aspx)*. JISC. 2007. Retrieved 5 July 2014.*
8. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-8) JISC. (2002). "Inform1." Retrieved 28 August 2007, from <http://www.jisc.ac.uk/publications/publications/pub_inform1.aspx>.
9. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-9) *Peat, Mary (July 2000). "Towards First Year Biology online: a virtual learning environment". Educational Technology & Society. 3 (3): 203–207.*[*JSTOR*](https://en.wikipedia.org/wiki/JSTOR)[*jeductechsoci.3.3.203*](https://www.jstor.org/stable/jeductechsoci.3.3.203)*.*
10. *Xu, Yan; Park, Hyungsung; Baek, Youngkyun (October 2011). "A New Approach Toward Digital Storytelling: An Activity Focused on Writing Self-efficacy in a Virtual Learning Environment". Educational Technology & Society. 14 (4): 181–191.*[*JSTOR*](https://en.wikipedia.org/wiki/JSTOR)[*jeductechsoci.14.4.181*](https://www.jstor.org/stable/jeductechsoci.14.4.181)*.*
11. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-11) *Reese, Sasha (September 2015). "Online learning environments in higher education: Connectivism vs. dissociation". Education Information Technology.*[*doi*](https://en.wikipedia.org/wiki/Digital_object_identifier)*:*[*10.1007/s10639-013-9303-7*](https://dx.doi.org/10.1007%2Fs10639-013-9303-7)*.*
12. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-12) *Posey, Burgess, Eason, & Jones.*[*"Advantages and Disadvantages of the Virtual Classroom and the Role of the Teacher"*](http://www.swdsi.org/swdsi2010/sw2010_preceedings/papers/pa126.pdf)*(PDF).*
13. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-13) Davis, C. (April 2014). Virtual Learning Rubric. Retrieved from <http://www.doe.mass.edu/odl/standards/VLPrubric.pdf>
14. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-14) *Walker, S (2003),*[*Development and Validation of an Instrument for Assessing Distance Education Learning Environments in Higher Education: The Distance Education Learning Environments Survey (DELES)*](http://espace.library.curtin.edu.au/R/?func=dbin-jump-full&object_id=14269&local_base=GEN01-ERA02)*(unpublished doctoral thesis), Western Australia: Curtin University of Technology*.
15. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-15) *Harnish, D; Reeves, P (2000), "Issues in the evaluation of large-scale two-way interactive distance learning systems", International Journal of Educational Telecommunications, 6 (3): 267–81*.
16. [Jump up^](https://en.wikipedia.org/wiki/Virtual_learning_environment#cite_ref-16) *Faruque, S (2012),*[*"10 Alternatives to Moodle for e-learning software, LMS Platform using open-source/GPL"*](http://tektab.com/2012/06/26/10-alternatives-to-moodle-for-e-learning-software-lms-platform-using-open-sourcegpl/)*, Open Source Open Standard.*