



# Course Management System

## Requirements Specifications

### 1 Learner Tools

Tools/facilities used by the student learner at their location, the client side of distance education.

#### 1.1 Web Browsing

Tools for viewing HTML documents

##### 1.1.1 Accessibility

Accessibility for persons with disabilities entails providing for a universal text version without relying on frames, tables, or images.

Requirement	How	Priority
Does not require the use of frames?		
Does not require a JavaScript enabled browser?		
Does not require a Java-enabled browser?		

##### 1.1.2 Bookmarks

Bookmarks identify Internet locations and this category covers the creation, display, management and updating of bookmarks.

Requirement	How	Priority
Assign Bookmarks from each page	CMS / ALT	Release 1
Access pages using Bookmarks.	CMS / ALT	Release 1
Resume session where you left off.	CMS / ALT	Release 1

##### 1.1.3 Multimedia

Multimedia includes the support for images, audio, video, and VRML files.

Requirement	How	Priority
Support for multimedia files (Shockwave, Real).	CMS / ALT	Release 1
Support for images (jpegs, gifs).	CMS / ALT	Release 1
Support for audio (mpg, wav).	CMS / ALT	Release 1
Allow access to external URLs via "hot-linking" capability	CMS / ALT	Release 1

##### 1.1.4 Security

Browser security refers to the support for secure transactions on the Web and to verify the security of downloaded code.



## 1.2 Asynchronous Sharing

Asynchronous sharing refers to the exchange of data and files where the correspondents are not on-line at the same time.

### 1.2.1 E-mail

Electronic Mail using the Internet protocols unless noted otherwise.

Requirement	How	Priority
Students send messages to other students	Sscape / ALT	Release 1
Instructors send messages to everyone in a course	Sscape / ALT	Release 1
Send out class announcements by instructor.	Sscape / ALT	Release 1
Instructor can create groups of students.		
Instructors can assign specific course material to individual or group of students.		

### 1.2.2 File exchange

File exchange is the facility for downloading files and uploading/posting files over the Web.

Requirement	How	Priority
A controlled or secure presentation area for student projects and papers?		

### 1.2.3 Newsgroups

Newsgroups facility includes Usenet newsgroups and like functions.

Requirement	How	Priority
Access Newsgroups from each page (launch new page)	Sscape / ALT	Release 1
Instructor can post to Newsgroup	Sscape / ALT	Release 1

### 1.2.4 Discussion

Discussion forums refer to the ongoing online discussion related to threads of information topics.

Requirement	How	Priority
Access discussion groups from each page (launch new page)	Sscape / ALT	Release 1
Post private messages for one another and for the instructor just using their browsers?	Sscape / ALT	Release 1
Messages can be searched and sorted according to different criteria? (e.g. author, date, title, topic)	Sscape / ALT	Release 1
Message database accessible or exportable for analysis	Sscape / ALT	Release 1



by other qualitative or quantitative evaluation tools?		
Collect all messages in a printer friendly format.	Sscape / ALT	Release 1
Archive discussions at any time	Sscape / ALT	Release 1
Supports attachments.	Sscape / ALT	Release 1

### 1.3 Synchronous Sharing

Real-time information exchange.

#### 1.3.1 Chat

Chat includes facilities like Internet Relay Chat IRC and similar text exchanges.

Requirement	How	Priority
Access Chat from each page (launch new page)	Sscape / ALT	Release 1
Multiple rooms / forums capability for each course	Sscape / ALT	Release 1
Course chat facility/logged	Sscape / ALT	Release 1
Virtual field trips within chat		

#### 1.3.2 Whiteboard

Whiteboard facility includes a shared text window that may also support shared drawing.

Requirement	How	Priority
Shared whiteboard		

#### 1.3.3 Application sharing

Application sharing includes the running of an application on one machine and sharing the window view of the running application across the Web and there may also be provisions for sharing mouse control of the application.

Requirement	How	Priority

#### 1.3.4 Virtual space

Virtual Spaces include MOOs, MUDs, and virtual meeting rooms.

Requirement	How	Priority

#### 1.3.5 Group browsing

Group Browsing involves a group tour of Web sites with a shared browser window and some interaction capability between the members of the group and at least the tour leader.



Requirement	How	Priority

### 1.3.6 Teleconferencing

Teleconferencing includes audio conferencing.

Requirement	How	Priority

### 1.3.7 Video conferencing

Videoconferencing includes broadcasting video to those without a video input device.

Requirement	How	Priority

## 1.4 Student tools

Student tools include applications that cater to the special needs of tele-learners.

### 1.4.1 Self-assessing

Self-assessing includes practice quizzes and other survey style assessment tools that may or may not be scored on-line.

Requirement	How	Priority
Provide self-correcting self-assessments.	CMS / ALT	Release 1
Access self-assessments from each screen.	CMS / ALT	Release 1
Provide self-correcting pre-assessments.	CMS / ALT	Release 1
Provide survey for feedback at the end of each Module.	CMS / ALT	Release 1

### 1.4.2 Progress tracking

Progress tracking includes some facility for the student to check marks on assignments and tests.

Requirement	How	Priority
Access to student records including modules taken, test and scores, etc. as pre-defined.	CMS / ALT	Release 1
Ability to add offline grades		
Grade statistics and histogram.	CMS / ALT	Release 1
Instructor comments available with grade	CMS / ALT	Release 1

### 1.4.3 Searching / Finding

Searching includes the facility to locate parts of the course materials on the basis of word matching beyond the users current browser page.



Requirement	How	Priority
Search tool for course material.	CMS / ALT	Release 1
Automated glossary tool/Automatic link to course content.	CMS / ALT	Release 1
Automated indexing tool	CMS / ALT	Release 1
Descriptive/Quick Link Menu	CMS / ALT	Release 1

#### 1.4.4 Calendaring

Calendaring includes a facility for scheduling special events.

Requirement	How	Priority
Calendaring tool	Sscape / ALT	Release 1
Integrated with the other components?	Sscape / ALT	Release 1

#### 1.4.5 Motivation building

Motivation building includes self-help tools and other facilities that provide direct encouragement to overcome difficulties that impede or impair student performance.

Requirement	How	Priority

#### 1.4.6 Study skill building

Study skill building includes facilities that support effective study practices, which can range from simple review tools to mini courses in how to study.

Requirement	How	Priority
Combine lessons for viewing	CMS / ALT	Release 1
Combine lessons for printing	CMS / ALT	Release 1

#### 1.4.7 Annotation

Annotation is the ability to keep ongoing study notes of the students learning experience.

Requirement	How	Priority
Students create private, individual annotations for course documents?	CMS / ALT	Release 1
Students can summarize notes for review.	CMS / ALT	Release 1
Students can summarize notes for printing.	CMS / ALT	Release 1

### 1.5 Virtual Classroom

The virtual classroom provides the tools that provide an environment similar to a physical classroom.



Requirement	How	Priority
My Classroom		
A consistent look and feel for all features.	CMS / ALT	Release 1
Access Chat from each page (launch new page)	CMS / ALT	Release 1
Access discussion groups from each page (launch new page)	CMS / ALT	Release 1
Access TOC from each page	CMS / ALT	Release 1
Access Glossary from each page	CMS / ALT	Release 1
Access Library from each page.	CMS / ALT	Release 1
Access Links section from each page.	CMS / ALT	Release 1
Take notes from each page	CMS / ALT	Release 1
View objectives from each page	CMS / ALT	Release 1

## 2 Support Tools

Instructor tools are facilities primarily intended for use by instructors, markers and course designers.

### 2.1 Course

Course Tools are facilities that facilitate the instructor's tasks related to bringing course materials together and managing the student's use/access of those materials.

#### 2.1.1 Course planning

Course planning tools are facilities that enable at least initial course layout and or structuring.

Requirement	How	Priority

#### 2.1.2 Course monitoring

Course monitoring includes facilities that provide information about the usage of course resources by individual students and groups of students.

Requirement	How	Priority
Course usage statistics	CMS / ALT	Release 1
Broken down by user	CMS / ALT	Release 1

#### 2.1.3 Course customizing

Course customizing includes the facility to change the structure of the course and its assignments, exams, etc. This may include guides, templates, and related product support and training.

Requirement	How	Priority
Add / modify / insert / delete content pages as required	CMS / ALT	Release 1



Add / modify / delete templates as required	CMS / ALT	Release 1
Explore content without having to go through sequentially. Choose which section and which lesson.	CMS / ALT	Release 1
Pop up pages for additional information or definitions.	CMS / ALT	Release 1

### 2.1.4 Course managing

Course managing tools include facilities to enable instructors to collect information from or about students related to their progress in the course structure and to permit/deny access to course resources.

Requirement	How	Priority
Instructors track the progress of individual students?	CMS / ALT	Release 1

## 2.2 Lesson

Lesson Tools are those facilities that facilitate the development and deployment of instructional sequences smaller than a whole course, like assignments, modules, topics, etc.

### 2.2.1 Instructional designing

Instructional designing includes facilities to help instructors create learning sequences.

Requirement	How	Priority
Navigation labels and aids used effectively and consistently?		

### 2.2.2 Presenting information

Presenting information includes facilities for formatting, displaying, or showing course material over the Web.

Requirement	How	Priority
Third-party web development tools (i.e. WS-FTP, Word97, FrontPage98)?		

### 2.2.3 Testing

Testing includes facilities to assist in the making up of practice quizzes, tests, exams, and other assignments.

Requirement	How	Priority
Administer tests	CMS / ALT	Release 1
Set time limits on tests	CMS / ALT	Release 1
Dynamically generate tests based on categories of questions (eg 5 questions from section 1, 5 questions from section 2...or 10 questions from type Scope or 10 questions from type Time)	CMS / ALT	Release 1



Redo tests for a certain section	CMS / ALT	Release 1
Keep test scores forever or replace with better results.	CMS / ALT	Release 1
Provide certificate based on scores.	CMS / ALT	Release 1
Perform some kind of action based on scores (e.g. go back to start of section, module, etc.)	CMS / ALT	Release 1
Multiple choice self-test tutorial questions (auto marking)	CMS / ALT	Release 1
Multiple image choice questions		
List matching questions		
Essay questions		
Fill in-the-blank self test tutorial questions (auto-marking)		
Short-answer self-test tutorial questions (auto-marking)		
Multiple correct answer questions		
One question at-a-time testing capability		
Imagemap questions (click on the correct part of the image)		
Question file upload capability		
Customized feedback to tutorial questions		
Redirect path of tutorial, depending on question answers		
Timed quizzes. (Graded with permanent mark retention. Delivered on-line on a pre-determined time and day)		
Timed test submission, completion, and results recovery		
Batch test question creation		
On-line marking and grading management of timed quizzes		
Supports graphics files adjacent to quiz questions		
Can create quiz with mixture of question types		
Scores can be e-mailed to instructor		
Grades can be stored on server		
Assign point values to questions		
Creates survey questions - non graded		
Displayed statistical results of surveys		

## 2.3 Data

Data tools includes tools for marking on-line, managing records, and for analyzing and tracking.





### 2.3.1 Marking on-line

Marking on-line includes facilities that support the marking of student generated material while on-line.

Requirement	How	Priority
Students are assigned quizzes which are marked online?		

### 2.3.2 Managing records

Managing records includes facilities for organizing and keeping track of course-related information.

Requirement	How	Priority
Course materials (including conferencing activities) are archived or deleted?		
Interaction message database accessible or exportable for analysis by other qualitative or quantitative evaluation to		

### 2.3.3 Analyzing and tracking

Analyzing and tracking tools include facilities for statistical analysis of student-related data and the facility to display the progress of individual students in the course structure.

## 2.4 Resource

Resource tools includes tools for building knowledge, team building, and building motivation among instructors.

### 2.4.1 Curriculum Managing

Curriculum Management includes tools to manage multiple programs, to do skills/competencies management, and to do certification management.

Requirement	How	Priority
Multi-tenant capability		

### 2.4.2 Building knowledge

Building knowledge includes facilities to accumulate and share the knowledge gained by individual instructors through their experience with distance education. Examples of knowledge building include the range from simple Q&A files to extensive database style data warehouses of tips, workarounds, and class exercises.

### 2.4.3 Team Building

Team building includes the facility for instructors with common interests to communicate in a way that facilitates their forming a sense of group/team identity.



#### 2.4.4 Building motivation

Building motivation includes facilities for self-help and possibly other help (buddy system) to encourage and enhance morale.

### 2.5 Administration

Administration Tools include all those setup and maintenance tasks involved on the server side of the application and extending to setup/configuration of client side software to work properly with the server side application. Some of these tasks may be carried out by instructors in some situations

#### 2.5.1 Installation

Server installation includes both software setup tools and installations related services provided by the vendor.

#### 2.5.2 Authorization

Authorization tools that assign access and other privileges to specific users or user groups.

Requirement	How	Priority
Password and username security		
Student can change password		
Support for open enrollment, as well as fixed-date courses		

#### 2.5.3 Registering

Registering includes on-line registration and/or linkage with existing registration systems.

Requirement	How	Priority
Allow user self registration		
Provide access to view available courses		
Provide access to sample course material		
Allow credit card individual purchases (or multiple)		
Allow business to business sales		
Allow management, generation and distribution of access codes for a set duration		
Purchase Orders (see below)		

Purchase orders or pre-registration - the administration module would allow temporary user names and passwords to be assigned to a group of learners which would recognize that payment had already been received for these learners. Once activated with a permanent user id and password, limit access to 3 months....or some other way?

Implementation Idea:

The ability to accept registration from a new user. This process will include an ecommerce interface. The user will create a user id and password that will allow the user to browse information



about available courses. Sample sections would be available to try out. These are always free and the user can register for any or all free sections. To access a pay for section, the user is required to enter a credit card or provide a previously provided access code (provided through a business purchase). The access code will expire once it is used (the access code can only be used once). One (or more) is also issued as part of the credit card transaction. Once the course is activated, through either method, the user will have access for a period of 3 months. After 3 months has passed the access will be automaticall revoked unless an additional access code is issued..

#### 2.5.4 On-line fees handling

Definition: Online fees handling includes tools to accomplish credit card transactions.

Requirement	How	Priority
E-commerce program should be integrated with registration process.		

#### 2.5.5 Server security

Security tools are used to prevent unauthorized access and/or modification of data. This can include a wide range of approaches and methods.

Requirement	How	Priority
Server components are SSL compliant?		

#### 2.5.6 Resource monitoring

Resource monitoring includes the facility to display the disk space and CPU resources devoted to the application while it is being used.

#### 2.5.7 Remote access

Remote access tools include facilities to do application system administration from more than one machine.

#### 2.5.8 Crash recovery

Definition: Crash recovery tools include facilities to recover from communications or server hardware failure without loss of data. These are tools in addition to the tools provided by the operating system.

### 2.6 Help

Help Desk tools are facilities that assist the technical administration personnel in handling trouble calls and requests for technical assistance.



### 2.6.1 Student Help

Useful HELP documentation provided online?

### 2.6.2 Student support

Student help-desk support tools include facilities to facilitate the tasks of an operator responding to requests for help by student users of the application.

Requirement	How	Priority
Printed and detailed administrative documentation provided?		
Online Student manual/Help		

### 2.6.3 Instructor support

Instructor support tools are facilities to assist technical support personnel in providing technical assistance to instructors using the application.

Requirement	How	Priority
Online Instructor manual		

## 2.7 Architecture

Requirement	How	Priority
Open architecture used in the design of the server-side components?		
Course management system conform to Instructional Management Systems (IMS) standards?		
Default settings that can be customized for other company's installation, and to what degree? (i.e. Homepage settings using a company logo)		
Defaults can be set for separate instances/uses of the program?		
Multi-tenant support.		
Multi-instructor support		
Multi-language support		