

Requirements for the Course Management System

Introduction

This document specifies the requirements for a Course Management System (CMS). The requirements are grouped by their stakeholders, and functional and non-functional requirements are separated.

Stakeholders

S	Students
L	Lecturers
B	Administration
M	System maintainer

General requirements

Some requirements are shared by all stakeholders.

R1	The system shall provide <i>static course information</i>	
R2	The system shall be able to store <i>static course information</i>	
R3	The system shall be able to represent <i>static course information</i>	
R4	The system shall provide <i>dynamic course information</i>	
R5	The system shall be able to store <i>dynamic course information</i>	
R6	The system shall be able to represent <i>dynamic course information</i>	
R7	The system shall provide a messaging system	

Requirements of Students

Functional requirements

R8	The system shall enable students to retrieve contact information of students and lecturers of subscribed courses	
R9	The system shall provide the history of a course (view contents of a course over the years)	

R10	The system shall provide the history of attended courses	
R11	The system shall enable students to subscribe/unsubscribe to courses	
R12	The system shall enable students to subscribe/unsubscribe to exams	
R13	The system shall be able to provide a collaboration environment in a course (so students can share files and notes within a team)	
R14	The system shall be able to let students submit textual content	
R15	The system shall be able to let students upload files	
R16	The System shall allow sending messages to individuals, teams or all course participants at once	
R17	The system shall allow students to create teams.	
R18	Teams are created by students inviting other students in the same course using the messaging system.	
R19	The system shall facilitate searches in all <i>static information</i> of courses.	
R20	The system shall facilitate searches within all <i>dynamic information</i> and files in a course	
R21	The system shall allow students to edit their personal information	
R22	The system shall allow students to change their password	
R23	The system shall provide a password reset function, which resets the password and mails it to the user	
R24	The system shall notify students of events (posted news messages, team invites and scheduled exams)	
R25	The system shall allow students to customize the notification behaviour	
R26	The system shall allow students to view course grade statistics per semester	

Non-functional requirements

Privacy

R27	The system shall protect the user's privacy	
R28	The system shall prevent students from viewing grades of others	
R29	The system shall provide a user-customizable visibility policy for the <i>personal</i>	

	<i>information</i>	
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Availability

R30	The system shall have high availability	
R31	The system shall not have unexpected downtime	
R32	The system shall have downtime at most 4 hours/month	
R33	The system shall have its expected downtime announced at least 48 hours in advance	
R34	The system shall have downtime only during low-intensity hours	

User friendliness

R35	The system will be user friendly	
R36	The system shall have bilingual support (Dutch and English)	
R37	The system shall have a maximum of 3 clicks to reach any content	
R38	The system shall have a single login to access all content	
R39	The system shall have a consistent UI (in all the views and dialogs, the UI elements behave and are placed in a similar way)	
R40	The system shall have a UI which is intuitive (the behaviour of the system is according to the intuition of a standard end user)	
R41	The system shall have a descriptive UI (all UI elements should have a descriptive text)	

Accessibility

R42	The system shall have high accessibility	
R43	The system shall be accessible by disabled (blind) users, who should be able to navigate the system and have access to all content and functionality	

Security

R44	The system will be secure	
R45	The system shall allow only students to change <i>study information</i> of others	

Interoperability

R46	The system shall be highly interoperable	
R47	The system shall provide an export to commonly used calendar formats (allowing users to import scheduled lectures into a personal calendar)	

Requirements of Lecturers

Functional requirements

R48	The system shall allow lecturers to create courses	
R49	The system shall allow lecturers to create entirely new courses	
R50	The system shall allow lecturers to recreate a course (copied from a previous period)	
R51	The system shall allow lecturers to register <i>assistant lecturers</i>	
R52	The system shall allow lecturers to prepare lecture schedules (roster)	
R53	The system shall allow lecturers to upload course material for lectures	
R54	The system shall enable lecturers to <i>manage grades</i> (insert, update, calculate final grade)	
R55	The system shall allow lecturers to specify and change the grading policy (weights of grades, determining when a student passes the course)	
R56	The system shall enable lecturers to mail multiple students at once	
R57	The system shall support the use of mail merge templates, to customize mass mailings (example: "Dear [Firstname], your grade is: [grade]").	
R58	The system shall provide a "one-click" function which will mail all students of the course their grades (no template should be entered or altered)	
R59	The system shall allow lecturers to manage <i>static course information</i>	
R60	The system shall allow lecturers to limit the number of students subscribing to a course	
R61	The system shall allow lecturers to specify enrolment policies based on grade, first-come first-serve (fcfs), and department	
R62	The system shall allow lecturers to specify enrolment policies based on grade	

R63	The system shall allow lecturers to specify enrolment policies based on first-come first-serve	
R64	The system shall allow lecturers to specify enrolment policies based on department	
R65	The system shall prevent students from subscribing to a course they don't qualify for (not completing required courses, or not from the right department(s))	
R66	The system shall allow lecturers to view all <i>personal information</i> (including pictures) of people in the system	
R67	The system shall enable lecturers to plan meetings with students or student teams	
R68	The system shall allow lecturers to <i>manage dynamic course information</i>	
R69	The system shall allow lecturers to post news messages	
R70	The system shall allow lecturers to <i>manage</i> the archive	
R71	The system shall allow lecturers to set the visibility of archived items (enabling them to gradually expose content to students)	
R72	The system shall allow only lecturers to <i>manage</i> student teams	
R73	The system shall allow lecturers to enter grades for teams (so each team member will get that grade)	
R74	The system shall allow only lecturers to create new teams	
R75	The system shall allow lecturers to insert students into teams	
R76	The system shall allow lecturers to remove students from teams	
R77	The system shall allow lecturers to delete teams	
R78	The system shall allow lecturers to assign (<i>assistant</i>) lecturers to teams	
R79	The system shall allow lecturers to name and rename teams	
R80	The system shall provide grade statistics (averages, standard deviation, per department, per year)	
R81	The system shall enable lecturers to compare grade statistics with other courses	

R82	The system shall allow lecturers to duplicate courses and import materials from other courses into another course, but only from their own courses	
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Security

R83	The system shall allow lecturers to view the <i>dynamic course information</i> of courses given by other lecturers	
R84	The system shall allow lecturers to <i>manage</i> the dynamic content visibility (visible for students and lecturers, visible for lecturers, visible to self only)	
R85	The system shall allow students to view only their own grade	
R86	The system shall allow lecturers to view all grades of all students in the course	

Interoperability

R87	The system shall be able to import BOZ roster information into the course roster	
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Non-functional requirements

Availability

See Students.

User friendliness

See Students.

Accessibility

See Students.

Requirements of Maintainer

Functional requirements

R88	The system shall allow maintainers to create back-ups of the entire system	
R89	The system shall allow maintainers to restore partial and complete back-ups of a specific date	
R90	The system shall allow maintainers to limit the size of files being uploaded by lecturers and by students	
R91	The system shall allow maintainers to limit the total available space for specific courses	

Non-functional requirements

Extensibility / evolvability

R92	The system shall be easily extensible and evolvable	
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Testability

R93	The system shall be easily testable	
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Scalability

R94	The system shall be scalable	
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Maintainability

R95	The system shall be easily maintainable	
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Interoperability

R96	The system shall be interoperable with secondary university systems	
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Requirements of the Administration

Functional requirements

R97	The system shall allow only the administration to <i>manage</i> courses	
R98	The system shall allow only the administration to create new courses	
R99	The system shall allow only the administration to delete courses	
R100	The system shall allow only the administration to update <i>static course information</i>	
R101	The system shall allow only the administration to appoint (principal) lecturers to courses	
R102	The system shall allow only the administration to specify the minimum number of students for a course. If there are too little subscriptions in a semester, that course will not be given during that semester.	
R103	The system shall have no maximum limit for the number of course participants ever	
R104	The system shall allow only the administration to specify the course prerequisites for students	
R105	The system shall allow only the administration to specify completed courses as prerequisites of a course	
R106	The system shall allow only the administration to specify the department as prerequisite of a course	
R107	The system shall allow the administration to retrieve all <i>study and personal information</i> of students	
R108	The system shall allow the administration to retrieve all lecturer information	
R109	The system shall allow the administration to enter lecturer information	
R110	The system shall allow the administration to calculate grade statistics	
R111	The system shall allow the administration to calculate grade statistics per year	
R112	The system shall allow the administration to calculate grade statistics per student	
R113	The system shall allow the administration to calculate grade statistics per course	

R114	The system shall allow the administration to calculate grade statistics per department	
R115	The system shall allow the administration to calculate grade statistics using combinations of the possibilities mentioned above	
R116	The system shall allow the administration to calculate the number of passed students per chair per time-period	
R117	The system shall allow the administration to evaluate courses through students by means of a web-survey	
R118	The system shall allow the administration to manually subscribe students to courses, bypassing requirements and enrolment policies	
R119	The system shall not allow users to change information which is contained and maintained by secondary university systems	
R120	The system shall automatically synchronize with secondary university systems	

Non-functional requirements

Availability

See Students.

User friendliness

See Students.

Interoperability

R121	The system shall be interoperable with <i>secondary university systems</i>	
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Extensibility

R122	The system shall allow the administration to make exceptions with regard to student enrolment to courses	
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Glossary

Personal Information: Information about a person, such as name, address, a picture, interests, etc.
Study Information: Information about a person's study progress, such as subscribed courses, grades and exam attempts.
Assistant Lecturers: Lecturers who assist the principal lecturer for a course.
Static Course Information: Information of a course which does not change while a course is given, but between semesters. This includes the lecturer, amount of ects and study material.
Dynamic Course Information: Information of a course which changes while a course is given. This includes news messages, archived files and roster.
Secondary University Systems: All university systems which are shared by different departments, such as a central address book containing all kinds of personal information
Manage: Managing involves the creation, reading, updating and deleting.