

CS 255 Module Two Assignment Template

Functional Requirements

Functional Requirement	Rationale for Requirement	Source(s), APA format
User and Role Management	The LMS should clearly define roles for students, instructors, and administrators. Students can see and submit their assignments. Instructors can grade assignments and upload content. Administrators manage accounts and system settings. Without clear roles, it can become confusing and insecure.	U.S. Department of Homeland Security. (2021). Cybersecurity and Infrastructure Security Agency – Best practices for account management. https://www.cisa.gov
Course Content Delivery	Instructors must be able to upload lessons, videos, documents, and readings in an organized way that students can easily access. This keeps learning centralized and makes sure students can review material anytime.	U.S. Department of Education. (2021). Reimagining the role of technology in education. https://tech.ed.gov
Assignments and Assessments	The system should allow students to submit homework, take quizzes, and complete exams online. Some questions (like multiple choice) can be auto-graded, while instructors should be able to provide feedback on written work. This keeps grading efficient and fair.	National Center for Education Statistics (NCES). (2022). Use of online assessments in postsecondary education. https://nces.ed.gov
Communication Tools	There must be built-in communication like announcements, discussion boards, and messaging. Students need updates, and instructors need ways to answer questions quickly. This prevents miscommunication and helps students feel connected.	Educause. (2020). 7 Things You Should Know About LMS Communication Tools. https://library.educause.edu
Scheduling and Notifications	The LMS should include a calendar with due dates and automatic reminders for	U.S. Department of Education, Office of Educational Technology. (2017). Future

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	students. This helps students stay on track and reduces the chance of missing assignments. Instructors should also be able to post exam dates and office hours.	Ready Learning. https://tech.ed.gov
Mobile Access	The LMS must be accessible on mobile devices through an app or responsive design. Many students rely on phones to quickly check grades or announcements. Without mobile support, the system would exclude a big portion of users.	Pew Research Center. (2021). Mobile fact sheet. https://www.pewresearch.org

Nonfunctional Requirements

Nonfunctional Requirement	Rationale for Requirement	Source(s), APA format
Security and Privacy	The LMS must comply with FERPA to protect student data and must use strong login and encryption methods. Protecting student information is a legal requirement and builds trust in the system.	U.S. Department of Education. (n.d.). FERPA—Protecting student privacy. https://studentprivacy.ed.gov
Accessibility	The system must follow Web Content Accessibility Guidelines (WCAG 2.2) so that students with disabilities can use it. This means screen reader support, captions, and proper color contrast. Accessibility ensures equal opportunity for all.	U.S. Access Board. (2023). Section 508 Standards. https://www.access-board.gov
Reliability and Uptime	The LMS should have at least 99.9% uptime. Classes run 24/7, and students around the world need access without outages. If the system goes down, learning stops.	National Institute of Standards and Technology (NIST). (2020). SP 800-53: Security and Privacy Controls. https://csrc.nist.gov
Performance and Scalability	The system must perform quickly even when thousands of students are online at once. This prevents slow loading or	NIST. (2020). SP 800-53 Rev. 5. https://csrc.nist.gov

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	crashes during busy times, like finals week.	
Interoperability	The LMS should integrate with other systems like Zoom, Google Drive, or the university's student records system. Students and instructors should not have to jump between multiple platforms.	Educause. (2021). The Future of LMS Interoperability. https://library.educause.edu
Backup and Recovery	The system must back up data daily and have a disaster recovery plan so that no student grades or assignments are lost. If something fails, recovery should happen quickly.	Federal Emergency Management Agency (FEMA). (2019). IT Disaster Recovery Planning. https://www.fema.gov

Assumptions

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All users will have internet access and modern devices.	I'm assuming students and instructors will already have a laptop, tablet, or smartphone and access to the internet. Without this, they can't participate in online learning.	Pew Research Center. (2021). Internet/Broadband Fact Sheet. https://www.pewresearch.org
YOU User University has login and roster systems already.	I'm assuming the university already has a system for student accounts and courses (like a student information system) that the LMS can connect to. Most colleges already use these systems.	Educause. (2019). Student Information Systems (SIS). https://library.educause.edu

Limitations

Limitation	Rationale for Requirement	Source(s), APA format
Limited Offline Access	While some LMS apps allow you to download materials offline, interactive features like quizzes, discussions, or submitting work will require internet access. That's just the nature of an online system.	U.S. Department of Education. (2020). Digital Divide in Education. https://tech.ed.gov

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Dependence on Third-Party Tools	The LMS may rely on third-party tools for video calls (Zoom) or proctoring software. If those services go down, the LMS can't fix it. This is a limitation outside of the university's control.	NIST. (2020). Supply Chain Risk Management. https://csrc.nist.gov