# CS 255 Module Two Assignment

Armon Wilson

## Functional Requirements

| **Functional Requirement** | **Rationale for Requirement** | **Source(s), APA format** |
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| The LMS shall support various content formats (e.g., text, video, audio, presentations, etc.) to enable creative and versatile engagement. | This flexibility ensures that instructors can tailor their course materials to different learning styles and preferences, enhancing student engagement and comprehension. | Mapuva, J. (2009). Confronting challenges to e-learning in Higher Education Institutions*. International Journal of Education and Development using ICT*, 5(3), 101-114. Retrieved May 16, 2024, from <https://www.learntechlib.org/p/42282/> |
| The LMS shall provide tools for creating and administering quizzes, assignments, and exams, along with automated grading features. | This functionality streamlines the grading process for instructors, provides timely feedback to students, and ensures fair and consistent grading. | Dougiamas, M., & Taylor, P. C. (2003). Moodle: Using learning communities to create an open-source course management system. *Proceedings of the EDMEDIA 2003 Conference*, 171-178. Retrieved May 16, 2024, from  <https://www.learntechlib.org/p/13739/> |
| The LMS shall offer features like discussion forums, chat rooms, and email for communication between instructors and students, as well as collaboration tools to enable group projects. | Group discussions and projects promote a sense of community among learners, facilitates knowledge sharing, and fosters collaborative learning. | Vonderwell, S. (2003). An examination of asynchronous communication experiences and perspectives of students in an online course: A case study. *The Internet and Higher Education*, 6(1), 77-90. Retrieved May 18, 2024, from <https://www.sciencedirect.com/science/article/abs/pii/S1096751602001641> |
| The LMS shall track student progress through courses, generate reports on grades and performance, and provide instructors with insights into student engagement and areas where additional support may be needed. | This allows instructors to monitor student progress, identify at-risk students early on, and tailor their instruction accordingly. | Pardo, A., & Siemens, G. (2014). Ethical and privacy principles for learning analytics. *British Journal of Educational Technology*, *45*(3), 438-450. Retrieved May 19, 2024, from <https://bera-journals.onlinelibrary.wiley.com/doi/abs/10.1111/bjet.12152> |
| The LMS shall provide a user-friendly interface for creating and managing student and instructor accounts, assigning roles and permissions, and enrolling students in courses. | This simplifies administrative tasks, ensures that users have appropriate access to resources, and maintains data integrity. | Vats, I. (n.d.). LMS requirements: Learning Management System Capabilities. *SelectHub.* Retrieved May 19, 2024, from <https://www.selecthub.com/learning-management/learning-management-software-requirements-features-list/> |
| The LMS shall be accessible on mobile devices (smartphones, tablets) to accommodate students who prefer to learn on the go. | This flexibility allows students to access course materials, participate in discussions, and complete assignments from anywhere, at any time, increasing user engagement and flexibility. | Sung, Y.-T., Chang, K.-E., & Liu, T.-C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers & Education, 94, 252–275*. <https://doi.org/10.1016/j.compedu.2015.11.008> Retrieved May 19, 2024, from <https://psycnet.apa.org/record/2016-06267-020> |

## Nonfunctional Requirements

| **Nonfunctional Requirement** | **Rationale for Requirement** | **Source(s), APA format** |
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| The LMS shall be responsive and able to handle a large number of concurrent users without significant performance degradation. | This ensures a smooth and seamless user experience, even during peak usage times. | Nah, F. F. H., Zeng, Q., Telaprolu, V. R., Ayyappa, A. P., & Eschenbrenner, B. (2014). Gamification of education: A review of literature. In World Conference on Educational Multimedia, Hypermedia and Telecommunications (pp. 880-889). Retrieved May 17, 2024, from <https://link.springer.com/chapter/10.1007/978-3-319-07293-7_39> |
| The LMS interface shall be intuitive, easy to navigate, and accessible to users with varying levels of technical expertise. | This reduces the learning curve for new users, encourages adoption, and promotes a positive user experience. | Buff, T. (2018, April 13). Why Usability Is The Most Important LMS Requirement. eLearning Industry. Retrieved May 17, 2024, from <https://elearningindustry.com/important-lms-requirement-usability> |
| The LMS shall employ security measures to protect user data, prevent unauthorized access, and ensure the confidentiality, integrity, and availability of information. | This is essential for safeguarding sensitive student and instructor data, maintaining trust in the system, and complying with applicable data protection regulations. | LMS Portals. (n.d.). LMS security: Powerful LMS security for corporate eLearning. Retrieved May 17, 2024, from <https://www.lmsportals.com/lms-security> |
| The LMS shall be available 24/7 with minimal downtime and have a recovery plan in place to ensure consistent service in the event of an outage or system failure. | This is critical for ensuring that students and instructors can access the LMS when they need it, minimizing disruptions to the learning process. | Vats, I. (n.d.). LMS requirements: Learning Management System Capabilities. SelectHub. Retrieved May 19, 2024, from <https://www.selecthub.com/learning-management/learning-management-software-requirements-features-list/> |
| The LMS shall be able to accommodate a growing number of users and courses without requiring substantial hardware or software upgrades. | This ensures that the LMS can meet the evolving needs of the university as it expands. | Vats, I. (n.d.). LMS requirements: Learning Management System Capabilities. SelectHub. Retrieved May 19, 2024, from <https://www.selecthub.com/learning-management/learning-management-software-requirements-features-list/> |
| The LMS shall be compatible with various web browsers and operating systems to ensure accessibility for all users. | This eliminates compatibility issues and allows users to access the LMS using their preferred devices and software. | Ally, M. (2019). Mobile learning: Transforming the delivery of education and training. Athabasca University Press. Retrieved May 19, 2024, from [https://books.google.com/books?hl=en&lr=&id=Itp60WteuJsC&oi=fnd&pg=PR1&dq=Ally,+M.+(2019).+Mobile+learning:+Transforming+the+delivery+of+education+and+training.+Athabasca+University+Press.&ots=5-DRH6EVjf&sig=A3oF2oZCQ2TCvgvzJy3tVivM\_3o#v=onepage&q&f=false](https://books.google.com/books?hl=en&lr=&id=Itp60WteuJsC&oi=fnd&pg=PR1&dq=Ally,+M.+(2019).+Mobile+learning:+Transforming+the+delivery+of+education+and+training.+Athabasca+University+Press.&ots=5-DRH6EVjf&sig=A3oF2oZCQ2TCvgvzJy3tVivM_3o%23v=onepage&q&f=false) |

## Assumptions

| **Assumption** | **Rationale for Requirement** | **Source(s), APA format** |
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| The university has a reliable network infrastructure in place to support the LMS, including adequate bandwidth and server capacity. | A robust network infrastructure is essential for ensuring the smooth operation of the LMS, especially with many users accessing it simultaneously. Without sufficient bandwidth and server capacity, the LMS may experience slowdowns, crashes, or other performance issues that can negatively impact the user experience. | Vats, I. (n.d.). LMS requirements: Learning Management System Capabilities. SelectHub. Retrieved May 17, 2024, from <https://www.selecthub.com/learning-management/learning-management-software-requirements-features-list/> |
| The university has a dedicated IT team to provide technical support for the LMS, address user issues, and maintain the system. | Even with a well-designed and implemented LMS, technical issues can arise. Having a dedicated IT team to ensure these issues are addressed promptly and effectively, minimizes disruptions to the learning process and maintains user satisfaction. | Usmani, F. (2022, October 5). Assumptions and constraints in project management. Home Page. Retrieved May 17, 2024, from <https://pmstudycircle.com/assumptions-and-constraints-in-project-management/> |

## Limitations

| **Limitation** | **Rationale for Requirement** | **Source(s), APA format** |
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| The project has a finite budget, which may constrain the choice of LMS features, functionality, and timeline of final product delivery. | The available budget will determine the scope of the LMS, the features that can be included, and the level of customization that is possible. It is important to prioritize the most essential features within the budget constraints. | Usmani, F. (2022, October 5). Assumptions and constraints in project management. Home Page. Retrieved May 18, 2024, from <https://pmstudycircle.com/assumptions-and-constraints-in-project-management/> |
| The project has a specific timeline for completion, which may necessitate prioritizing certain features over others. | Time constraints are a common limitation. The project timeline will influence the pace of development, the features that can be implemented within the given timeframe, and the level of testing and quality assurance that can be performed. Establishing a realistic timeline and prioritization of key features is a critical step in ensuring timely delivery. | Usmani, F. (2022, October 5). Assumptions and constraints in project management. Home Page. Retrieved May 18, 2024, from <https://pmstudycircle.com/assumptions-and-constraints-in-project-management/> |