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18 May 2025

CS-255 System Analysis and Design

# CS 255 Module Two Assignment Template

## Functional Requirements

| **Functional Requirement** | **Rationale for Requirement** | **Source(s), APA format** |
| --- | --- | --- |
| User authentication through log in credentials | This allows each user to have a specific role and only have access to that role to maintain privacy | Instructure. (2023). *Canvas LMS Product Features*. https://www.instructure.com/canvas |
| Course content management | The professors and other faculty members need to be able to add different content related to their courses in different formats. | Al-Fraihat, D., Joy, M., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior, 102*, 67–86. https://doi.org/10.1016/j.chb.2019.08.004 |
| Grading system | Students need to be able to submit their work, have it graded, and have their grades visible to them. | Al-Fraihat, D., Joy, M., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior, 102*, 67–86. https://doi.org/10.1016/j.chb.2019.08.004 |
| Direct messaging | Students and professors should be able to communicate with each other. This can be in the form of discussion posts, group assignments, as well as announcements and emails. | Chickering, A. W., & Gamson, Z. F. (1987). Seven Principles for Good Practice in Undergraduate Education. *AAHE Bulletin*, 39(7), 3–7. |
| Quizzing, labs, and assignments | Professors need to be able to assign students with various quizzes, labs, and assignments to allow for proper evaluations. | Al-Fraihat, D., Joy, M., & Sinclair, J. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior, 102*, 67–86. https://doi.org/10.1016/j.chb.2019.08.004 |
| Analytics | This allows school faculty to monitor grades, progress through each course, and engagement. This can be seen in the Brightspace quizzes timer. | Siemens, G. (2012). Learning analytics: Envisioning a research discipline and a domain of practice. *Proceedings of the 2nd International Conference on Learning Analytics and Knowledge*, 4–8. https://doi.org/10.1145/2330601.2330605 |

## Nonfunctional Requirements

| **Nonfunctional Requirement** | **Rationale for Requirement** | **Source(s), APA format** |
| --- | --- | --- |
| System integrity | The system needs to be able to integrate with other systems such as Turnitin, ZyBooks, and even different kinds of video software such as zoom. | Instructure. (2023). *Canvas LMS Product Features*. https://www.instructure.com/canvas |
| Security and privacy | The system needs to be secure to maintain privacy between all students and faculty members. | Instructure. (2023). *Canvas LMS Product Features*. https://www.instructure.com/canvas |
| System availability | If the system is constantly under maintenance, then it can’t be used. Users need to have a consistent way to access the system. | Instructure. (2023). *Canvas LMS Product Features*. https://www.instructure.com/canvas |
| Multiple device capabilities | Allowing the system to be accessed through different devices such as phones, tablets, and computers, more people have access to the system at any time. | D2L. (2023). *Brightspace LMS Overview*. https://www.d2l.com/brightspace/ |
| Scalability | The system needs to be able to support an incredible amount of users. SNHU has about 165,000 students and it is not the only school that uses a system like Brightspace. | Bass, L., Clements, P., & Kazman, R. (2012). *Software Architecture in Practice* (3rd ed.). Addison-Wesley |
| Response time | The system needs to respond when the user is attempting to do something. Long response times not only can cause frustration, but it could greatly hinder a student if they are taking a time based quiz, test, or exam. | Zhang, P., & Adipat, B. (2005). Challenges, methodologies, and issues in the usability testing of mobile applications. *International Journal of Human-Computer Interaction, 18*(3), 293–308 |

## Assumptions

| **Assumption** | **Rationale for Requirement** | **Source(s), APA format** |
| --- | --- | --- |
| Users have access to the internet | All the different learning management systems are online based. This means that each and every user would be required to have some sort of internet access to use the system. | Alshaher, A. A. (2013). The McKinsey 7S model framework for e-learning system readiness assessment. *International Journal of Advances in Engineering & Technology, 6*(5), 1948–1966 |
| Training | For the system to be properly used by the school’s faculty, there would need to be some sort of training to teach them how to use it to a level that they could also help their students when problems arise. | D2L. (2023). *Brightspace Implementation Services*. https://www.d2l.com/services/implementation/ |

## Limitations

| **Limitation** | **Rationale for Requirement** | **Source(s), APA format** |
| --- | --- | --- |
| Budgets | Unfortunately, when creating a learning management system, the more features that are added, the more the system is going to cost to make and upkeep. This can cause many different systems to be used or to not have nearly the amount of features that others have. | Watson, W. R., & Watson, S. L. (2007). An argument for clarity: What are learning management systems, what are they not, and what should they become? *TechTrends, 51*(2), 28–34 |
| Data challenges | As the system gains more and more data, or is transitioned to a different system, it can cause major time delays as well as data loss due to incompatibility. | Alhazmi, A. K., & Rahman, A. A. (2012). Why LMS failed to support student learning in higher education institutions? *E-Learning and Digital Media, 9*(4), 360–369. https://doi.org/10.2304/elea.2012.9.4.360 |