

# *System Specifications - Requirements Document*

## **CampusCentral**

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## **Functional Specifications**

**1.0 (US1STUDENT/US3TAGRAD/SS2SA): A user shall be able to view their financial information based on their role at the university.**

(Rationale: Students need to have access to this information so that they're aware of the due amounts and dates, can pay their tuition fees, and check how their fees are distributed along their course load and services. System administrators need access to their payslips and tax information so that they are aware of how their total pay is split among salary, benefits, etc.)

**1.1 (US2STUDENT/US1TAGRAD): A user shall be able to view their academic progress against their registered program requirements for graduation.**

(Rationale: Undergraduate and graduate students need to know the amount of course load completed and the remaining required course load for them to graduate. This will help students plan upcoming academic semesters accordingly to complete their program.)

**1.2 (US3STUDENT/US2TAGRAD): A user shall receive course registration notifications when course registration opens, deadlines are approaching or planned courses are approaching full capacity.**

(Rationale: Students need to have these alerts so that missing important deadlines and course spots can be avoided.)

**1.3 (US4STUDENT/SS1TAGRAD): A user shall be able to plan courses for upcoming semesters before and after course registration is open.**

(Rationale: Students need to be able to see how their remaining courses can be distributed along upcoming semesters so that they can estimate graduation dates and budget for tuition)

**1.4 (US4STUDENT/SS1TAGRAD): A user shall be able to register for courses that they are eligible for and that have available slots during an open registration period.**

(Rationale: Students need to be able to register for courses that they meet the requirements for, through pre-requisites and not taking prior restricted courses so that they can proceed with their academic program's requirements for graduation.)

**1.5 (US4STUDENT/SS1TAGRAD): A user should be able to drop courses that they are no longer interested in taking and have the ability to do so until a specified date indicated by the system administrator.**

(Rationale: Any student who is not happy with their progress in a specific course needs to have the ability to discontinue from the corresponding course at any given point throughout the semester)

**1.6 (US5STUDENT): A user shall be able to browse through all the available course offerings and find relevant information on the course such as prerequisites, restrictions, and a description of the course.**

(Rationale: Students need to be able to view what courses the institution has to offer, this allows them to plan their schedule and get a better idea of what they may be interested in taking.)

**1.7 (US5STUDENT): A user should be able to filter out the courses available in the semester by the time, day of the week, subjects, class level, and academic levels to intuitively configure their schedules.**

(Rationale: Students need to be able to view a variety of different courses offered at different times to accommodate for any overlaps in their schedule).

**1.8 (US1PROF): A user should be able to view what courses they have taught, are teaching currently, and will teach in the future.**

(Rationale: This will allow professors to keep track of everything course related they have to manage currently or will have to manage in the future.)

**1.9 (US1PROF): The system shall allow the user to download a list of the student's user ID's in a specific lab or course.**

(Rationale: This will help professors utilize students' user IDs to their liking.)

**2.0 (US2PROF): The system shall display the number of labs, the TA's responsible for the lab, and the number of students enrolled in each course lab section.**

(Rationale: This functionality is required to provide a clear overview of the lab operations and management. This helps in ensuring proper allocation of resources such as TA time and equipment, as well as making sure that the student-to-TA ratio is within an acceptable range.)

**2.1 (US2PROF): The system shall display the number, name, and user-id of each student enrolled in the respective classes the user is teaching.**

(Rationale: This will allow the professor to manage their students' information in a more efficient manner and allow them to create email lists to reach out to all their students.)

**2.2 (US2PROF): The system shall allow the professor to access a class listing with full name and student ID available for all enrolled students in the course. The list should be updated gradually for any potential additions or dropping throughout the semester.**

(Rationale: It is easy and convenient for the professor to access a list of students in his class so he can assign them to various groupings such as lab sections or potential discussion groupings with a class list at hand.)

**2.3 (US3PROF): The system shall allow for final grades for each individual to be entered and posted to the system by the professor for the head of the department (chair) to approve.**

(Rationale: Only the professor has the power to post final grades for the course.)

**2.4 (US4PROF/US2PROF): The system shall allow the Professor to edit and assign lab slots for specific students and TAs, and view the overall lab section information of the course.**

(Rationale: This makes it easier for any rearrangements necessary for students and TAs and makes the lab assignment more flexible and viewable).

**2.5 (SS1PROF): A user shall be able to view and edit a profile page viewable by other users.**

(Rationale: Professors need this feature to include information about their professional academic careers. Students can use professors' profile pages to help them make a decision on enrolling in a certain course taught by that professor.)

**2.6 (US1PROG/SS1PROG): A user shall be able to view student profiles and find information related to their current academic standing, past courses, etc.**

(Rationale: Program counselors need to know this information so that it can help them provide guidance to students when planning courses for upcoming semesters.)

**2.7 (US3PROG): A user shall be able to view the waitlist and priority queues for courses that are filled and provide the ability to override waitlists, prerequisites, and course capacity to add new student users to courses.**

**2.8 (US4PROG): A user shall be able to view the financial information and status of each student.**

(Rationale: This will help student counselors keep track of which students to inform about tuition deadlines and financial aid resources.)

**2.9 (US5PROG): A user shall be able to view each scholarship available, the requirements for each scholarship, and what scholarship students currently have.**

(Rationale: This will help student counselors keep track of students' scholarship requirements and make sure they're not falling below the required averages.)

**3.0 (US1SA): A user shall be able to view and download all current courses and potential courses along with detailed information about the said course (i.e course weight, course level, course code) offered by the university and the planned courses to be offered per semester. The user can select the preferred download format.**

(Rationale: As a system administrator all necessary course information should be at my disposal to be detailed and altered in a preferable file format of my choosing).

**3.1 (US4SA): A user shall be able to post announcements about policy updates, software maintenance, university news, and other information.**

**3.2 (US5SA): A user shall be able to view the entire listing of active TAs for any given course, alongside their teaching history.**

**3.3 (US5SA): A user shall be able to view any active hiring slots for courses requiring TAs for hire.**

(Rationale: This helps system admins in making it easier for them to inform users of any information that may affect them or be important to them.)

**3.4 (SS1AP): An applicant user shall be able to log into CampusCentral using an authenticated applicant login sent to them by the university during the application process.**

**3.5 (SS1AP): An applicant user shall be able to change their login information if they forget the password or for any other personal reason.**

**3.6 (SS2AP): An applicant user shall be able to view their personal profile page after logging in, which will display the status of their application and any documents that they have uploaded throughout the application process.**

(Rationale: Applicants should be able to stay consistently updated on their application status, in order to prevent confusion and provide user clarity.)

**3.7 (SS3AP): An applicant user shall be able to upload relevant documentation to their application when the status of their application is in the “Documents Required” stage.**

**3.8 (SS4AP): An applicant user shall be able to navigate to a “News and Resources” section when logged on to CampusCentral as an applicant.**

(Rationale: This requirement will allow applicants to stay up to date on the news around campus, and access help resources if the need arises)

**3.9 (SS6AP): An applicant user shall be able to access important university locations and contact information by scrolling down the bottom of any CampusCentral page and reading the relevant information from the footer.**

(Rationale: Relevant university information such as campus locations and contact information are frequently accessed resources and therefore should always be available at the easiest convenience).

**4.0 (SS6AP): A user shall be able to view the university’s contact information and other potential beneficial resources at the bottom of each page.**

(Rationale: Applicants need this information easily accessible to them so that they can get in touch with the university in case of any inquiries during their application process at the quickest convenience.)

**4.1 (SS7AP): An applicant user shall be able to see the current estimated processing time when they log on to CampusCentral. This shall be displayed next to the current application status. This value shall be constantly updated to the new estimate if the current processing time exceeds the original estimation.**



**4.2 (SS7AP): An applicant user shall be able to read about why certain application stages take as long to process as they do in the “Resources” subsection of the “News and Resources” section.**

**4.3 (SS8AP): An applicant user shall be able to receive an email if the current processing time exceeds the estimation. This email should explain why the current processing time is taking longer than expected and provide a new estimate.**

**4.4 (SS8AP): A user shall be able to log into their own personal campus central account. The login would be a combination of a username and password all created by them upon registration.**

## **Non-Functional Specifications**

**1.0: The system shall have the ability to work with thousands of concurrent users at a given time i.e process requests, fast website load times, etc.**

(Rationale: A large volume of users will be using the application many times during a semester, especially during peak seasons such as course registration and tuition deadlines).

**1.1: (SS1SD): The system shall have the option to enable color blind mode, there will be different modes for different types of color blindness. (Rationale: This will provide users with access to allow them to navigate freely with the elements located within the system.)**

**1.2 Each user shall be able to log in to CampusCentral via their school email and password.**

(Rationale: Every user should have their own account associated with the University that is associated with their education).

**1.3: The system shall have a small period of time where any maintenance updates and security fixes are applied to the system.**

(Rationale: During which, the system is non-functional to every user besides System Administrators).

**1.4: CampusCentral should be accessible on both mobile devices and web browsers, including Safari, Chrome, and Microsoft Edge.**

(Rationale: Users will need access depending on what devices and browsers they use).

**1.5: Users that are logged in for a session for more than 30 minutes of being inactive will automatically be logged out.**

(Rationale: Due to security and authentication reasons, the user should be logged out to protect any important documents).

**1.6: CampusCentral shall automatically clear out the cache, cookies, and temporary web files from any browser after the user logs out from their active session.**

(Rationale: This eliminates any issues with cache/cookies from the client side and allows more tabs to be opened in the same browser without any client workaround).

**1.7: The system shall have a large database that can hold user data for each individual student,**

(Rationale: The database will include tables of important information for student IDs, first names, last names, and student emails, in order to keep track of student information that will be used for educational purposes).

**1.8: The system will have security for all user passwords to be encrypted which includes a password requirement for a minimum of 8 characters, which must include symbols, numbers, and capital letters.**

(Rationale: In order to have a secure system, users should have a strong password to protect important documents within CampusCentral)

**1.9: The system will use fast and robust encryption techniques to secure confidential documentation that any applicant uploads throughout the application process. This will ensure that cyberattacks cannot leak personal application information.**

(Rationale: In order to have a secure system, CampusCentral must be able to protect any confidential and personal information that an applicant uploads to ensure safety and privacy.)

**2.0: CampusCentral shall process homepage load requests within 2 seconds**

(Rationale: Due to many users logging in concurrently, CampusCentral must support fast login times to ensure that the traffic flow is smooth)

**2.1: The system will use cloud technology to run data backup operations on a frequent basis, to ensure that important documents are always stored in a secure location in case of emergency.**

(Rationale: Due to the prominence of the university, it is prone to cyberattacks that aim to delete important files. It is a responsible practice to back up important files in case of an emergency.)

**2.2: The system will leverage artificial intelligence technologies to scan applicant documents to ensure that the uploaded documents are relevant and of the correct format.**

**2.3: The system will lock your account for a set amount of time when there have been too many incorrect password attempts. Information on resetting the password will be sent to the user's email.**

(Rationale: This helps add an extra level of security to the user's account and also informs the user if there is any suspicious activity on their account.)

**2.4: The system will apply protection against online spam bots who try to send large amounts of malicious emails to university staff and students.**

(Rationale: To protect the security and privacy of users, spam and phishing emails shall be blocked and filtered out)

**2.5: The university shall employ multiple distributed computing systems that run CampusCentral servers to provide safeguards in case one particular computer fails for any reason.**

(Rationale: To ensure that the system is as robust and resilient as possible, it is important to make sure that gradual degradation is implemented.)

**2.6: The system shall employ efficient SEO optimization techniques to make all CampusCentral search functionalities as robust as possible.**

(Rationale: The CampusCentral system must be as user-friendly as possible, and optimizing the search functionalities in the application will provide great convenience to the users.)

**Please Note this was a group project:**

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