IS 636: Structured System Analysis and Design

Deliverable 5 : Design

Project Title: Enhanced Course Enrollment and Notification System

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Submission Date: 14th May 2024

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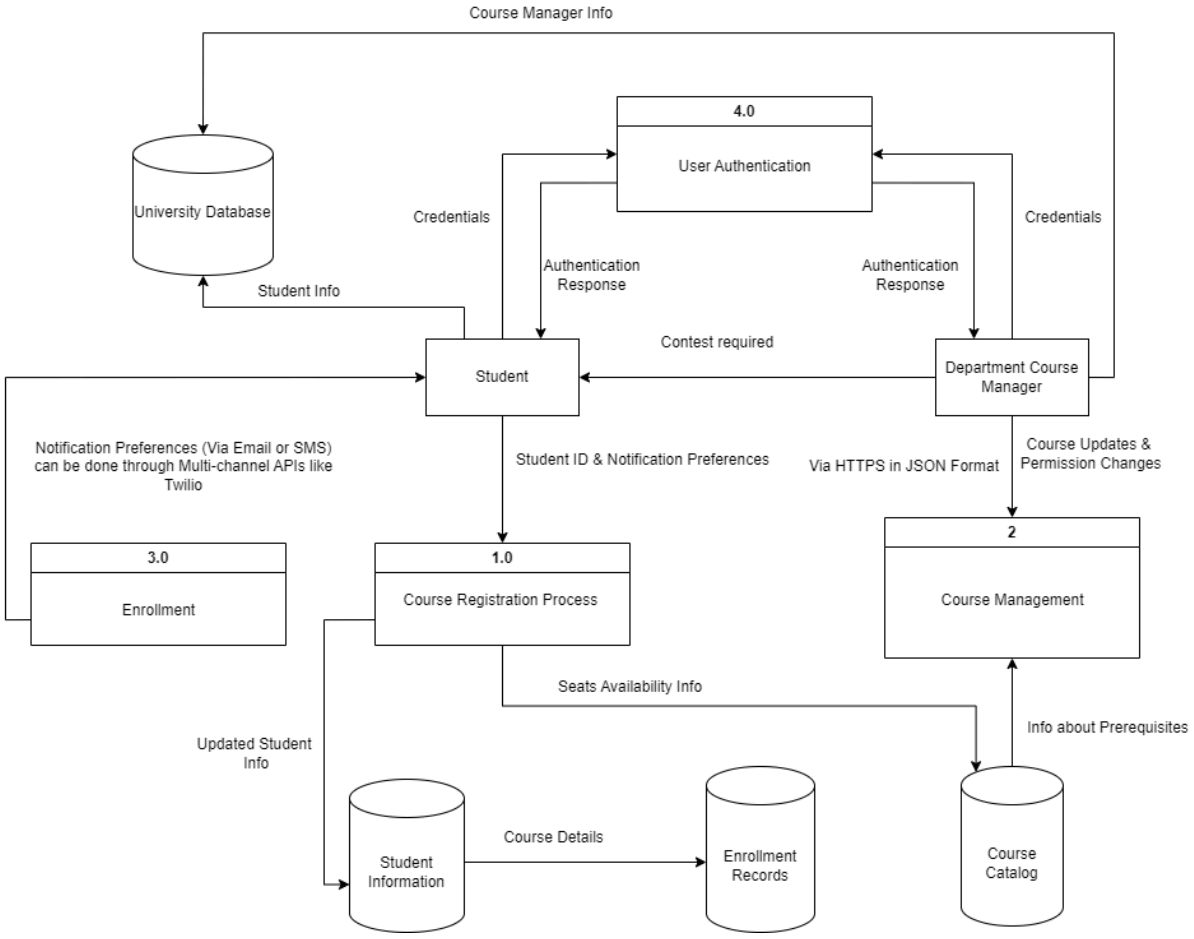
1. Physical Process Model:



Step 1: User Verification

Logging in is how both department course supervisors and students begin interacting with the system. After they submit their credentials, they are checked against records kept in the University Database, particularly those pertaining to the student and instructor information sections. When their authentication is successful, they can access the functions they are entitled to within the system.

Step 2: Course Registration Process

This phase is only for students who register for courses after completing their authentication successfully. The procedure entails:

- Verifying Seat Availability: Information about seat availability is retrieved from the course catalog throughout the course registration process.

- Registration and Notification: Students' data is updated in the Student Information database when they register for a course. Additionally, they configure notification preferences, which can be controlled by multi-channel APIs such as Twilio for SMS or email correspondence.

Step 3: Course Management

Department supervisors oversee the course offerings after logging in and confirming their identity. This comprises:

- Updating Course Information: Managers have the authority to change the prerequisites and seat availability of any course that is listed in the Course Catalog.
- Notifications and Permissions: Modifications are fed back into the system and may cause notifications to be sent to students who may be impacted. Data transmission for this operation is done via secure HTTP connections using the JSON format.

Data Stores and Flows:

- University Database: All user credentials and basic profile data are housed in one central location. It facilitates authentication by giving the required teacher and student details.
- Enrollment records and student information: Compiles all information pertaining to students' personal data, changes, and course registrations.
- Course Catalog: Keeps track of all the specifics of a course, such as prerequisites and available seats. The Course Management procedure accesses and updates it on a regular basis.

Step 4: Enrollment and Updates

After students register for courses:

- Enrollment Confirmation: Students are officially enrolled, with records updated in the Enrollment Records and Student Information databases.
- Updated Student Information: Reflects any new courses students are enrolled in and any changes in their academic records, ensuring the student profile is always current.

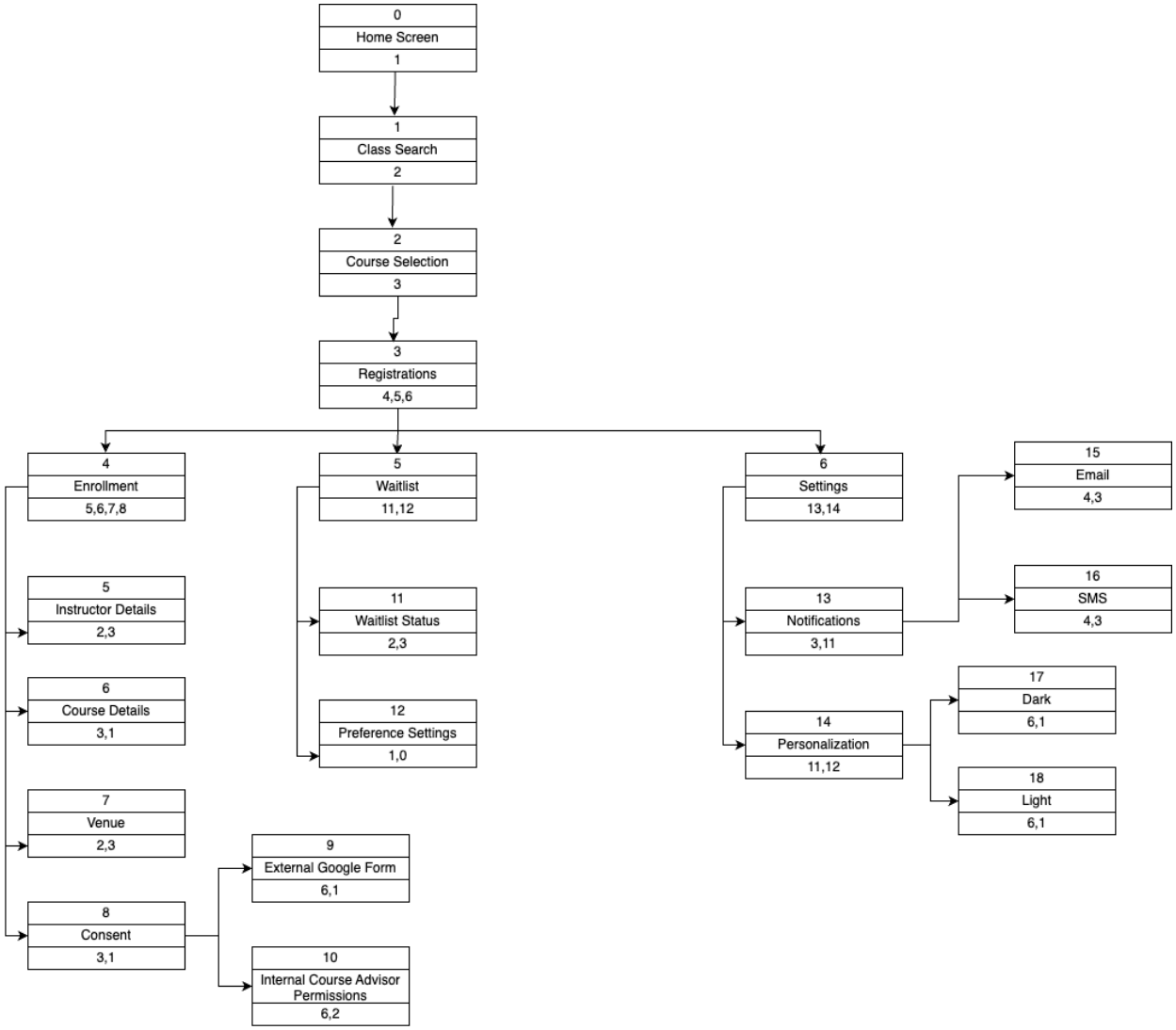
Integration of System Components:

- Seamless Data Flow: Information about students and courses flows efficiently between processes and data stores, ensuring that all components of the system are synchronized and up-to-date.

- Security and Data Integrity: Use of HTTPS for secure data transmission, especially in updates and notifications, ensures that data integrity and privacy are maintained across the system.

2. User Interface Design

A. Interface Structure Diagram



Navigating the Course Management System:

The diagram provides instructors and students with an organized way to navigate the course management system, starting at the Home Screen (0). This starting point is crucial for users to orient themselves within the application and move to more specific functionalities.

Class Lookup and Course Selection:

Through the Class Search (1), users can explore a variety of course options from the Home Screen. To filter and find courses that fit their academic interests or teaching duties, users must use this section. Users navigate to the Course Selection (2) area after locating the appropriate courses, where they can look over more information about the courses and choose which ones to take.

Enrollment and Instructional Administration:

After choosing a course, customers proceed to the Registrations (3) procedure, which is a crucial intersection that leads to various essential features:

Enrollment (4): This is where students complete their registration for courses. Real-time adjustments to the Student Information database are reflected in the system's processing of these enrollments.
Waitlist (5): Users can choose to join waitlists for courses that are completely reserved. They can control the status of their waitlist and customize how they want to be updated using this interface.

Specific Course Details:

Users can obtain comprehensive data, including Instructor Details (6), Venue (7), and Consent (8), during the enrolling process. Making informed judgments is further aided by the comprehensive information about the course logistics provided in these parts.

Additional Features:

For further requirements and outside actions:

For purposes like submitting feedback or gathering additional data, an External Google Form (9) is integrated.
Internal user roles and permissions are managed by the Internal Course Advisor Permissions (10), which guarantees correct maintenance of administrative activities.

Customization and User Preferences:

Comprehensive Settings (11) are also included in the system to control user preferences and notifications. Here's where users can:

You may control how they receive critical updates and information by adjusting the Notifications (12) settings.
Use the Personalization (13) options to personalize their experience. To improve usability and visual comfort, select themes like Dark (14) or Light (15).

Advanced Functionalities:

The system provides capabilities for Grade Retrieval and Waitlist Status, allowing students to effectively manage their course engagements and actively follow their academic progress, thus further improving the academic experience.

B. Interface Convention and Standards

The course management system is made with great care to follow strong standards and conventions for interface design, which guarantees accessibility, consistency, and usability. Maintaining uniformity in navigation and interface components is essential as it creates a dependable and recognizable atmosphere that lowers the learning curve and improves user comfort. Across different interfaces, elements like buttons and dropdown menus are standardized and positioned consistently, making them easier to operate and more comprehensible. Additionally, the system provides thorough visibility and feedback, guaranteeing that users are informed by means of instantaneous feedback methods like loading indications and confirmation messages. Clear and useful error messages greatly improve user interaction by lowering user annoyance.

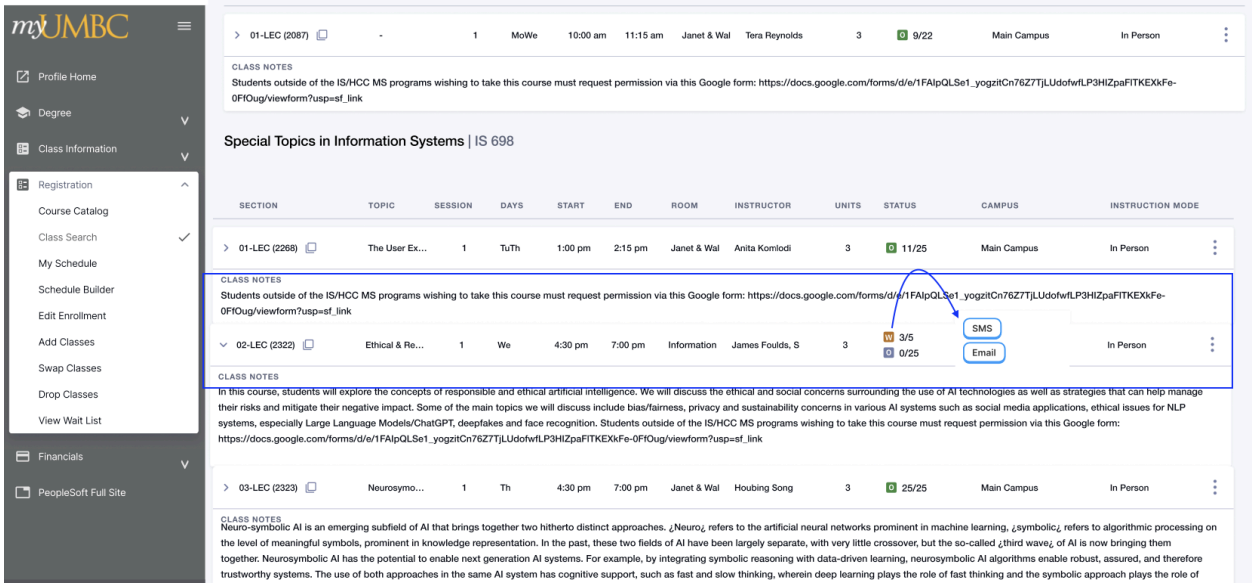
The system is inclusive and supports all users, regardless of ability, thanks to accessibility features. This makes the system accessible to a larger audience and includes features like keyboard navigability, high contrast themes for better readability, and ARIA labels for interactive controls. Ensuring a secure user experience, security measures are strictly enforced, including encrypted data transmissions and stringent access controls to safeguard sensitive information. Furthermore, the system's adaptability lets users personalize everything from navigation accelerators to interface themes, satisfying the needs of both inexperienced and seasoned users.

The course management system provides an efficient, safe, and joyful experience in addition to fulfilling the functional needs of its users by incorporating certain interface conventions and standards. Better engagement and productivity are encouraged by the system's excellent support

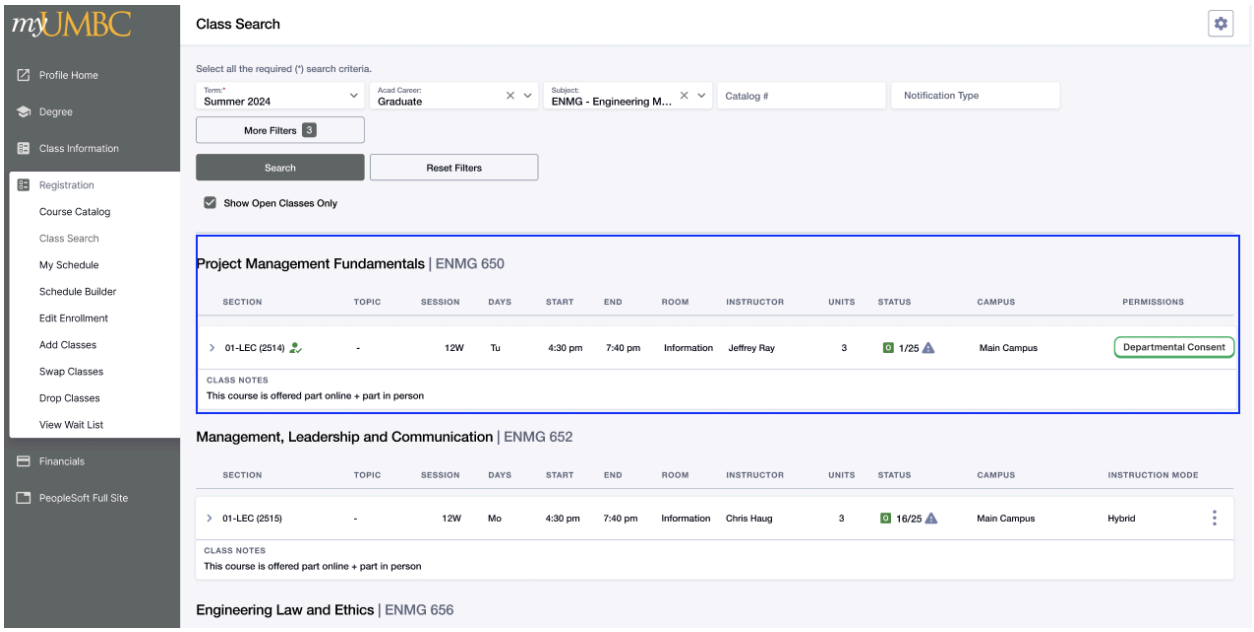
of administrative and academic operations, which is ensured by its comprehensive approach to design and functioning.

C. Interface Design Prototype

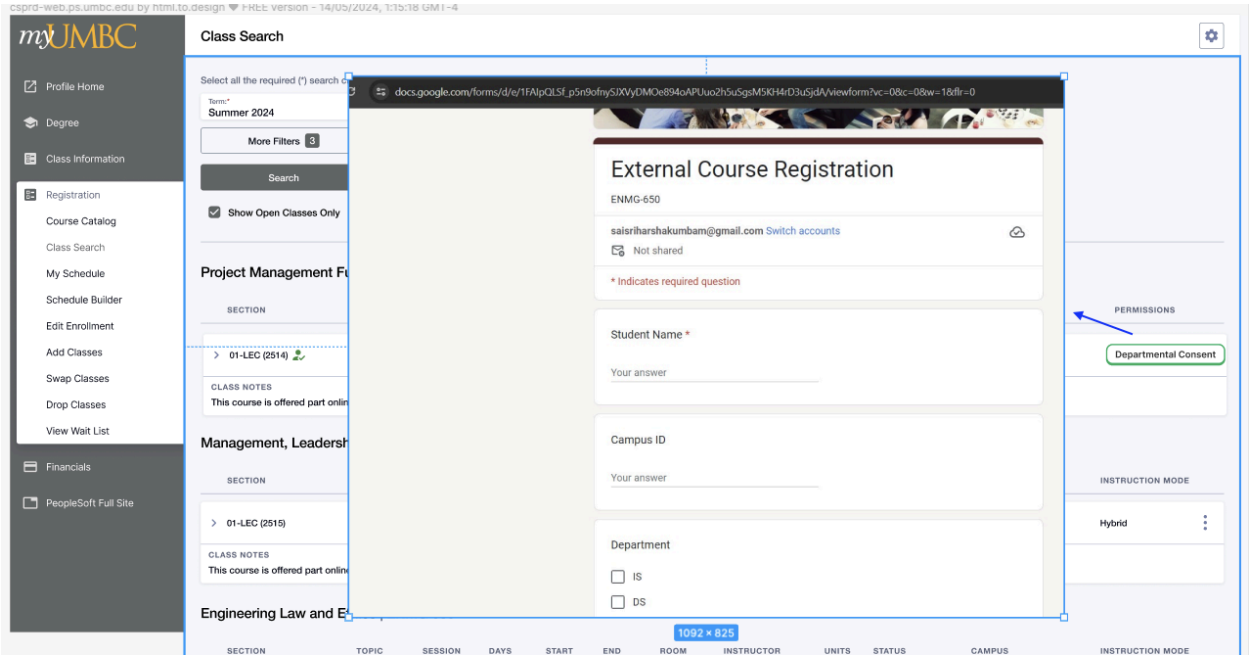
Screen 1 Waitlist Indicator and Notification Preferences buttons:



Screen 2: Permissions Overview



Screen 3: Course Registration Form



To give students a complete picture of their academic standing, the Enhanced Course Enrollment and Notification System's User Dashboard is built as a primary center. It has features like a Waitlist Status Indicator for real-time updates on waitlist movements and an Enrollment Status Overview that shows current enrollment and comprehensive course details. Additionally, the interface has Course Management features that let students seek enrollment across departments, add or remove courses, and manage all correspondence relating to their courses through a Notification Center. To guarantee maximum accessibility across a range of devices, the interface is designed using responsive design.

Another essential element is the course registration form, which is designed to streamline the registration procedure, particularly for cross-departmental courses that call for extra authorization. It offers unambiguous feedback following the successful submission of registration forms, real-time confirmation of seat availability and prerequisites, dynamic search and filtering capabilities, and direct workflow integration of consent forms.

Students can also personalize their communication options through the Notification options Settings interface. Students can select which events to receive information about, as well as their preferred notification methods (such as SMS, email, or app alerts). They can also verify these configurations using the verify Notification function to make sure everything is set up correctly. By providing flexibility, transparency, and real-time interaction with the course enrollment system, this toolkit aims to improve student happiness.