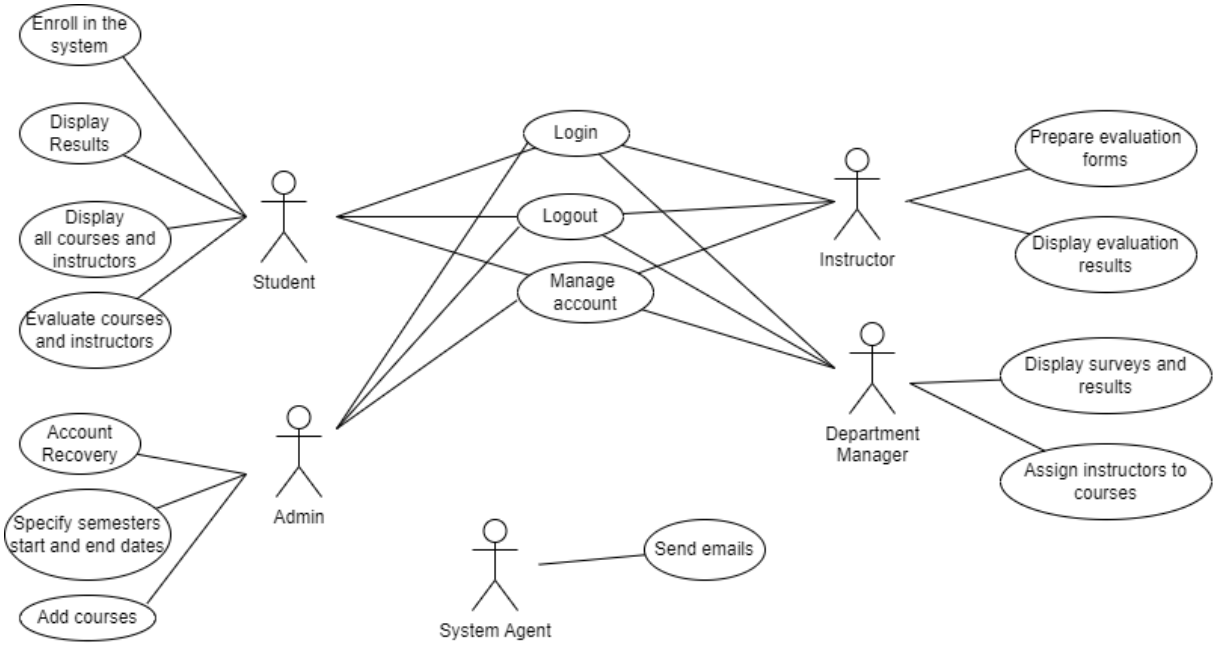
ICES4HU
System-Wide Requirements Specification

1. Introduction

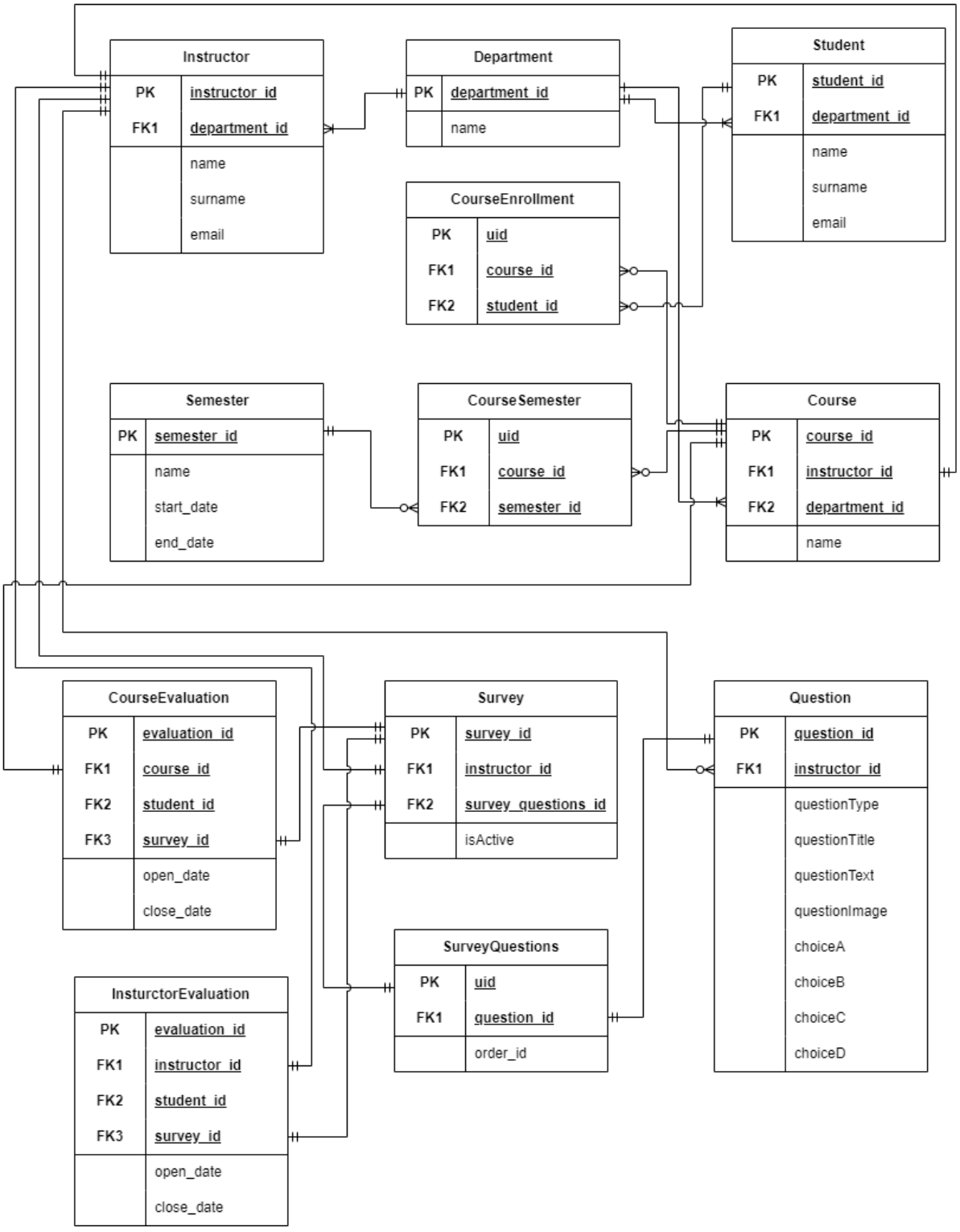
This document introduces the system-wide requirements of the Hacettepe University Faculty Member and Course Evaluation System (ICES4HU) project. The functionality and requirements specified for ICES4HU will be described in this document. ICES4HU is necessary to provide a better and efficient system for its users at the University, so the requirements and functions are determined by them.

2. System-Wide Functional Requirements

Use Case Diagram



Entity Relationship Diagram



The system's System-Wide Functional Requirements are:

2.1 Auditing

The system must be able to track and log user activities and changes made to the system. This will help in identifying any unauthorized access or malicious activity and in tracing back any errors or issues.

2.2 Authentication

The system should allow only authorized users, i.e. students, instructors, admin, etc to access the system. The authentication mechanism must be secure and robust to protect sensitive information and prevent unauthorized access.

2.3 Printing

The system should have printing capabilities to allow for the printing of reports and other relevant information.

2.4 Reporting

The system must be able to generate reports on the course and instructor evaluations. The reports should provide reasonable insights, such as the strengths and weaknesses of courses and instructors, and suggestions for improvement. The reporting functionality should be very flexible enough to allow the university to generate customized reports as per their requirements.

3. System Qualities

3.1 Usability

Usability requirements are below:

- Ease of Use: The system must be easy to use, with an intuitive and user-friendly interface that allows students to quickly and easily provide feedback on courses and instructors.
- Ease of Learning: The system must be easy to learn, with clear and concise instructions that guide students through the evaluation process.
- Usability Standards: The system must conform to usability standards, such as those outlined in ISO 9241, to ensure that the interface is consistent and easy to use for all users. ISO 9241 is a standard developed by the International Organization for Standardization (ISO) that covers the ergonomics of human-computer interaction. It is managed by the ISO Technical Committee 159.
- Localization: The system should support localization, allowing for the translation of the user interface into different languages, such as Turkish and English, to accommodate the diverse student population at Hacettepe University. There are many foreign students who study in almost every department in our university.
- Customization: The system should allow users to customize and update their settings, such as language preference, personal information, login information.
- Error Prevention and Recovery: The system should be designed to prevent errors, with clear error messages and recovery options that allow users to correct their mistakes and continue with the evaluation process.
- Simple Help and Feedback: The system should give users feedback on their progress as they complete the course and instructor evaluations. For instance, progress bars or completion indicators can be used to show how much of the evaluation process has been completed and how much is left, which can be in "%" notation. This feedback will help students to stay on track and complete the evaluations within the given

time frame. Additionally, the system could provide reminders to students who have not yet completed their evaluations, to encourage them to finish in a timely manner.

- Consistency: The system should be consistent in its design and functionality, ensuring that similar tasks are performed in the same way throughout the system.

3.2 Reliability

Reliability requirements are below:

- Availability: The system should be available to users at all times, with minimum downtime for maintenance or upgrades. The system should have a high availability rate, with downtime limited to schedueled maintenance periods only.
- Frequency and Severity of Failures: The system should be designed to minimize the frequency and severity of failures. The system should have mechanisms in place to detect and correct errors before they become critical, and to recover from any failures that do occur. The system should also be able to handle most of the users without experiencing system failures or crashes.
- Recoverability: The system should be designed with recoverability in mind, meaning that the system should be able to recover quickly from any failures that do occur in . The system should have to be builded in redundancy and failover mechanisms to ensure that the system can continue to function even in the event of a failure.

3.3 Performance

Performance requirements and qualities for this project:

- Response Time: The system should be designed to provide fast response times to user requests, with minimum delay. Response time should be measured from the time the user submits a request to the time the system responds with the requested info.
- Throughput: The system should be designed to handle a high volume of users and requests simultaneously, without experiencing any performance issues or slowdowns. (Throughput is the amount of data that can be processed and transferred through the system in a given period of time.)
- Capacity: Capacity is the maximum number of users that the system can handle at any given time. The system should be designed to handle a large number of concurrent users, without experiencing any degradation in performance.
- Startup / Shutdown Times: The system should be designed to start up and shut down quickly, without any delays or performance issues. Startup time is the amount of time it takes for the system to become operational after it is started, while shutdown time is the amount of time it takes for the system to shut down and become inactive.

3.4 Supportability

Supportability requirements and qualities for this project:

- Adaptability and Upgrading: The system should be designed with modularity in mind, so that future updates can be easily integrated into the system without requiring extensive rewrites or changes. This means that the code should be well-organized and maintainable, and that dependencies should be clearly defined. Additionally, the system should have a mechanism for handling updates or changes without causing disruptions or downtime.

- Compatibility: The system should be compatible with a variety of different hardware and software configurations to ensure that it can be used by as many people as possible.

- Configurability: The system should be flexible and easily customizable / configurable to fit the unique needs of Hacettepe University. This means that admins should be able to adjust evaluation forms, notification settings, and user access levels as needed. Additionally, the system should come with clear documentation and support to help administrators make these customizations easliliy.

- Scalability: The system should be designed to handle a large number of users and a growing amount of data without losing performance.

- Level of Support and Maintenance: The system should have a dedicated support team that can quickly respond to any issues or problems that arise. The system should also have a maintenance plan in place to ensure that it remains up-to-date and functional over time. The maintenance plan should include regular updates, bug fixes, and security patches.

4. System Interfaces

Responsible for facilitating communication and interaction between different components of a software system. In order to ensure effective development and testing, the System Interface defines specific interfaces that must be supported by the application.

4.1 User Interfaces

The User Interface is the part of the software that users interact with directly, so it is important to ensure that it is user-friendly and meets their needs.

4.1.1 Look & Feel

The user interface of the ICES4HU should have a visually appealing design with clear labeling and intuitive grouping of functions. The system should be designed to provide a positive user experience that engages users and helps them achieve their goals effectively. The interface should be user-friendly and easy to navigate, with a consistent and intuitive layout across all pages. Additionally, the interface should be responsive and adaptable to different devices and screen sizes, including mobile devices. Finally, the system should prioritize accessibility and inclusivity, with features such as keyboard navigation and high contrast mode for users with disabilities.

4.1.2 Layout and Navigation Requirements

User Interface needs to group related functions together in a logical and intuitive way, based on the specific needs of different user types and workflows. It should also provide a consistent and intuitive user experience across different screens and functions, using standardized layouts and navigation patterns. By doing so, the User Interface can provide a streamlined and efficient way for users to interact with the software.

4.1.3 Consistency

To ensure consistency in the User Interface, standardized terminology should be used throughout the software. This improves usability, reduces confusion, and improves communication between users and systems. The User Interface should also maintain consistency in other design elements, such as navigation controls, screen layouts, and data entry fields. By doing so, users can easily predict what will happen when they interact with the software, improving overall satisfaction and productivity.

4.1.4 User Personalization & Customization Requirements

User Interface should provide personalized dashboards for both students and teachers, displaying information and functionality specific to each user's role. The dashboards should be customizable and allow for personalized recommendations based on the user's activity and behavior within the system. This improves user engagement and academic outcomes.

4.2 Interfaces to External Systems or Devices

4.2.1 Software Interfaces

This system must interface with a database management system (DBMS) to store and retrieve user data, survey responses, and course/instructor information.
The system must also interface with an email server to send notifications to users, such as when a survey is available or when evaluation results are shared.

4.2.2 Hardware Interfaces

This system does not require any specific hardware interfaces, as it will be accessed through standard web browsers on user devices.

4.2.3 Communications Interfaces

This system requires an internet connection for users to access it through web browsers.
The system may also need to communicate with other networked devices, such as printers, if users choose to print survey responses or other information.

5. Business Rules

5.1 Account Management Rules

5.1.1 Password Reset Rule (AMR001)

If a user forgets his/her password, the admin can send a new password to the user's registered email address upon the user's request.

5.1.2 User Account Creation Rule (AMR002)

When the admin creates an account for a new user, the system sends an email including the user's username and password to the registered email address of the user.

5.1.3 Account Management Rule (AMR003)

A user can access and manage their account, including changing their personal information such as their picture and password.

5.2 Course and Evaluation Management Rules

5.2.1 Evaluation Form Management Rule (CEM001)

The admin can manage the evaluation forms uploaded by instructors or department managers, and delete questions that are not appropriate.

5.2.2 Course Enrollment Request Rule (CEM002)

The admin can take new enrollment requests from new users (students) and approve or reject their requests.

5.2.3 Dismissed Students and Resigned Academicians Rule (CEM003)

The admin can delete the accounts of students dismissed from the university and the accounts of academicians who resigned from their profession.

5.3 System Security Rules

5.3.1 Evaluation Form Content Rule (SSR001)

Only the students who take the course should be able to evaluate the relevant course and the corresponding instructor. If any other user tries to submit an evaluation form, the system should reject it.

5.3.2 User Ban Rule (SSR002)

If a user uses slang words in the evaluation form, the admin should ban the user. The banned user cannot submit another evaluation form to other instructors or courses.

5.4 Course Enrollment Rules

5.4.1 Enrollment Request (CER001)

A student can enroll in the system by sending an enrollment request to the admin.

5.4.2 Semester Start and Department Manager Assignment (CER002)

A student can enroll in a course once both the semester starts and the department manager assigns an instructor to the course.

5.5 Survey Evaluation Rules

5.5.1 Evaluation Survey (SER001)

A student can evaluate the course and corresponding instructor they have taken by filling out the electronic survey for that course and instructor.

5.5.2 Saving Responses (SER002)

A student can save individual responses or all responses to continue the evaluation at another time. They can click the Edit button on the course/instructor evaluations list to continue the evaluation.

5.5.3 Evaluation Reminder (SER003)

When a student logs in to the system, they will see a reminder to complete the course evaluation. They have the option to save and return later and finish.

5.5.4 Evaluation Completion (SER004)

When a student has completed the evaluation and selected the submit button, they will receive a confirmation message verifying that they are ready to submit the evaluations.

5.5.5 Certificate of Completion (SER005)

Once a student has completed an evaluation, they will receive a “Certificate of Completion” sent to their Hacettepe email address.

5.5.6 Course/Instructor List (SER006)

A student can see a list of their courses/instructors and select the title of the courses/instructors they want to evaluate.

5.5.7 Evaluation Results (SER007)

A student can view the evaluation results they have filled related to a specific course and/or instructor.

After grades for the evaluated term are finalized, instructors will be able to see the results.

Instructors can download the evaluation results of each course and themselves in Excel format. They can also see the evaluation results in some graphical notations such as line graphs, bar graphs, and pie charts, etc.

Unlike regular instructors, an admin can access the responses of each student.

5.5.8 Evaluation Timeframe (SER008)

Evaluations are only open for a limited time, and filling permission is not granted for expired forms.

5.5.9 Anonymity of Responses (SER009)

All responses will be anonymous, and the information a student submits is entirely confidential and anonymous.

5.5.10 Evaluation Emails (SER011)

Students will receive different system-generated emails related to the course/instructor evaluations, including pre-survey announcement, non-responder email, and e-mails reminding them of the evaluation deadline.

5.5.11 Survey Creation (SER012)

Instructors can create electronic surveys about their course(s) and teaching performance. They can add questions from their question bank or create new questions. Surveys can be saved for completion at a later time.

Instructors will receive a reminder to complete the survey until it is submitted.

5.5.12 Survey Submission (SER013)

When instructors finish the survey, they should click "Save All Questions" and "Submit Survey" buttons. The system will send a confirmation message to their personal Hacettepe email. Once the survey is submitted, instructors cannot add new questions and alter (edit/delete) the questions they created if the evaluation is starting in 1 or fewer days, already started, or if there has been at least one response. Instructors can alter the survey start and end dates to provide additional days to complete the evaluation.

5.5.13 Re-evaluation (SER015)

If an instructor thinks there is inconsistency and unfairness in the survey results, they can click the "Re-evaluate" button, and the department manager can re-evaluate the results by accessing each individual evaluation result.

5.5.14 Assessment Sharing (SER016)

A Department Manager can share assessment-related results with all instructors by sending an email by clicking only one "Share Results All" button.

6. System Constraints

Hardware and software infrastructure, security, scalability, usability, compatibility, and support and maintenance. The system should have robust hardware and software infrastructure, implement strong security measures, be scalable to handle high user traffic, provide a user-friendly interface, be compatible with the existing IT infrastructure, and require regular support and maintenance.

7. System Compliance

7.1 Licensing Requirements

This application will be used by Hacettepe University, so it will only be licensed to Hacettepe University.

7.2 Legal, Copyright, and Other Notices

Our software ensures that all online instructor and course content comply with relevant legal regulations and copyright requirements. The used materials are verified to be in accordance with local, national, and international laws, and proper permissions and agreements are obtained from copyright holders. This ensures that our online courses are legally compliant and respect intellectual property rights.

7.3 Applicable Standards

Our software complies with industry-standard guidelines and best practices for online instructor and course content. This includes adhering to relevant legal, security, and ethical standards to ensure a high-quality and inclusive learning experience for all users.

8. System Documentation

Upon the product's release, a user manual will be provided to guide users. The purpose of the user manual is to provide assistance and give an overview of the product. It will include general information about the software system and instructions on how to use the product. The user manual will be accessible online.