

---

# **Software Requirements Specification**

**for**

## **Academic's Promotion System**

**Version 1.0 approved**

**Prepared by:**

**Mohamed Maged , Yossef Hesham , Lojine Ahmed , Hannah Elhaddad,  
Aya Khodeir , Abdulrahman Nasr**

**German International University (GIU)**

**15<sup>th</sup> of December 2024**

# Table of Contents

|   |           |
|---|-----------|
| <b>Table of Contents .....</b>                      | <b>ii</b> |
| <b>Revision History .....</b>                       | <b>ii</b> |
| <b>1. Introduction.....</b>                         | <b>1</b>  |
| 1.1 Purpose.....                                    | 1         |
| 1.2 Document Conventions.....                       | 1         |
| 1.3 Intended Audience and Reading Suggestions ..... | 1         |
| 1.4 Product Scope .....                             | 1         |
| 1.5 References.....                                 | 1         |
| <b>2. Overall Description .....</b>                 | <b>2</b>  |
| 2.1 Product Perspective.....                        | 2         |
| 2.2 Product Functions .....                         | 2         |
| 2.3 User Classes and Characteristics .....          | 2         |
| 2.4 Operating Environment.....                      | 2         |
| 2.5 Design and Implementation Constraints .....     | 2         |
| 2.6 User Documentation .....                        | 2         |
| 2.7 Assumptions and Dependencies .....              | 3         |
| <b>3. External Interface Requirements .....</b>     | <b>3</b>  |
| 3.1 User Interfaces .....                           | 3         |
| 3.2 Hardware Interfaces .....                       | 3         |
| 3.3 Software Interfaces .....                       | 3         |
| 3.4 Communications Interfaces .....                 | 3         |
| <b>4. System Features .....</b>                     | <b>4</b>  |
| 4.1 System Feature 1.....                           | 4         |
| 4.2 System Feature 2 (and so on).....               | 4         |
| <b>5. Other Nonfunctional Requirements.....</b>     | <b>4</b>  |
| 5.1 Performance Requirements.....                   | 4         |
| 5.2 Safety Requirements.....                        | 5         |
| 5.3 Security Requirements.....                      | 5         |
| 5.4 Software Quality Attributes.....                | 5         |
| 5.5 Business Rules .....                            | 5         |
| <b>6. Other Requirements .....</b>                  | <b>5</b>  |
| <b>Appendix A: Glossary.....</b>                    | <b>5</b>  |
| <b>Appendix B: Analysis Models .....</b>            | <b>5</b>  |
| <b>Appendix C: To Be Determined List.....</b>       | <b>6</b>  |

## Revision History

| Name                                | Date       | Reason For Changes    | Version |
|-------------------------------------|------------|-----------------------|---------|
| Abdulrahman Nasr<br>, Mohamed Maged | 15/12/2024 | Initial Draft Outline | 0.0     |
|                                     |            |                       |         |

# 1. Introduction

## 1.1 Purpose

The purpose of this document is to provide a detailed description of the system that is responsible for the promotion of all academics in Egypt. This document will focus on the overall description of the system, system features which encapsulate functional requirements , external interface requirements , and non-functional requirements.

This document particularly focuses on two roles in the process, the Voucher and the Operational Admin.

## 1.2 Document Conventions

*<Describe any standards or typographical conventions that were followed when writing this SRS, such as fonts or highlighting that have special significance. For example, state whether priorities for higher-level requirements are assumed to be inherited by detailed requirements, or whether every requirement statement is to have its own priority.>*

## 1.3 Intended Audience and Reading Suggestions

This document is intended for members of the ministry of higher education and Scientific research and academics who wish to apply for promotions. The document explains and displays the requirements and workflow of a subsection of the application process (Namely the voucher and operational admin roles).

The release of this document operates as guidance to the development , maintenance , and use of the academic promotion system.

## 1.4 Product Scope

The software specified in this document is responsible for the promotion of all academics in Egypt in different respective roles (Assistant Professor, Associate Professor , etc.). The system prepares two different reports for the applicant to allow them to apply for promotion. The first report generated is the impact factor report (IF), which measures the frequency with which the average journal or research has been cited. The second report generated is the Plagiarism Report (PR) , which measures the average plagiarism factor in a journal or research.

The system's goal is to help generate these reports in a smooth fashion. In addition to integrating the software with different systems that are responsible for the promotion process and the evaluation of the local journals.

The system ensures that the application process for academics can be carried out smoothly on both the Academic's side and the Ministry of Higher Education's side.

The SRS Document focuses on two roles in the system software. The voucher is responsible for ensuring that the application process is valid before passing it on to the technical roles. The operational admin is responsible for ensuring operational integrity and control over the process.

## 1.5 References

Ministry of Higher Education Website – Applicant's Website.  
<https://sso.scu.eg/applicant/member>

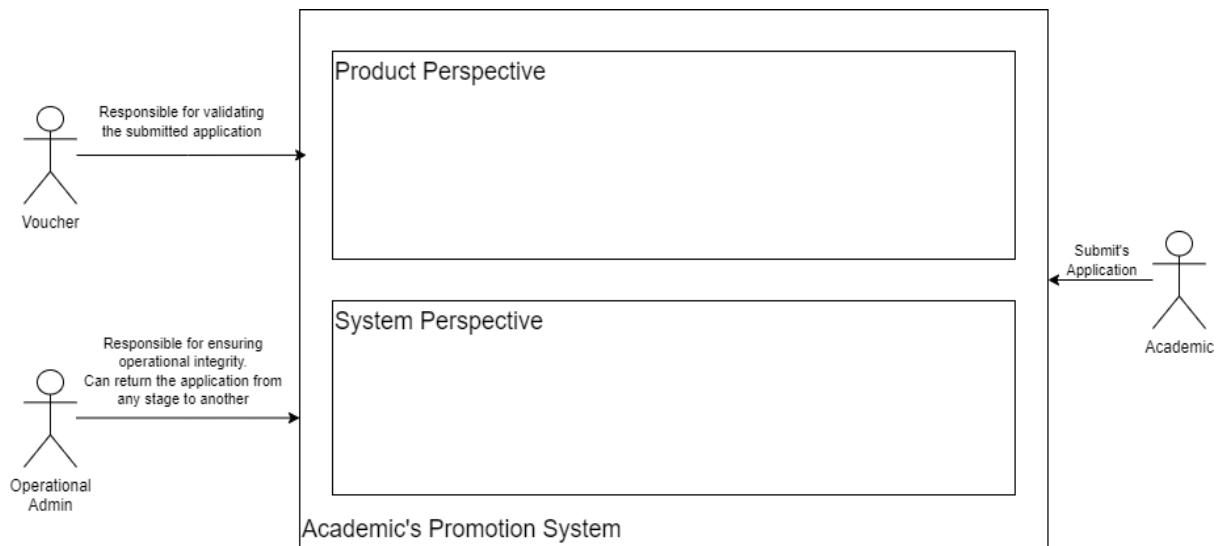
## 2. Overall Description

### 2.1 Product Perspective

The product is a replacement for the academic's promotion system that is currently operational on the Ministry of Higher Education's platform.

The product functions as a way for the Ministry of Higher Education to process academic promotion requests quickly and efficiently. The product is organized in a modular manner where each role is responsible for a smaller phase of the application process.

The Document focuses on the components relating to the voucher and operational admin roles. The components of this document are vital to the larger system, as it relates to roles that are essential to the application process.



### 2.2 Product Functions

The product should allow the voucher to view submitted applications, review them, be able to send additional information back to the applicant (e.g. if there is missing information that is required), and forward the application to other respective roles.

The product should allow the operational admin to view all application statuses and return or forward applications to different stages.

## 2.3 User Classes and Characteristics

The software system is intended for the different members of the Higher Ministry of Education that are a part of the academic promotion application process. This system namely focuses on the vouchers and the operational admins.

The software system is also intended for academics's who are registered in the Higher Ministry of Education that are interested in applying for academic promotions. The roles of the academics can range from Assistant Professor all the way to Full Professor.

## 2.4 Operating Environment

*<Describe the environment in which the software will operate, including the hardware platform, operating system and versions, and any other software components or applications with which it must peacefully coexist.>*

## 2.5 Design and Implementation Constraints

The current state of the system is designed to operate on a new database with no records of past or ongoing applications. This is because the system was designed and developed without any access to the Ministry of Higher Education's Current database that the existing system operates on.

## 2.6 Assumptions and Dependencies

It is assumed that the system will be operating on a large-scale server, that is capable of handling high loads and a large number of requests.

It is also assumed that at some point during deployment, the Ministry of Higher Education's Database will be made available. This will help ensure a smooth transition from the previous system to the newer one.

# 3. External Interface Requirements

## 3.1 User Interfaces

- **Dashboard:** A centralized interface showing task summaries for Vouchers and Operational Admins.
  - **Validation Screen:** Displays the application details, status, and options for validation or return.
  - **Notifications Panel:** Pop-up or sidebar notifications for task updates and system alerts.
  - **Responsive Design:** Compatible with desktops, tablets, and smartphones, ensuring functionality on smaller screens.
  - **Error Messages:** Clear, descriptive error messages for invalid inputs or missing data.
-

## 3.2 Software Interfaces

- Integration with the Ministry of Higher Education's existing database for fetching academic records.
- APIs for:
  - Document plagiarism checks.
  - Impact factor calculations.
  - Notification services (SMS and email).

>

## 3.3 Communications Interfaces

- **Protocols:** HTTPS for secure communication.
- **Standards:** WCAG 2.1 AA for accessibility compliance.
- **Email System:** Uses SMTP for email notifications.
- **File Transfers:** Secure file uploads using SFTP.

# 4. Voucher System Features

## 4.1 Application Validation

### 4.1.1 Description and Priority

The application validation feature ensures all submissions are complete, adhere to required formats, and meet the academic promotion system's quality standards. This is a **High Priority** feature as it is integral to the system's workflow.

### 4.1.2 Stimulus/Response Sequences

- **Stimulus:** The Voucher initiates the validation process for a submitted application.
- **Response:** The system checks all mandatory fields, verifies attachments, and either flags errors or marks the application as valid.

### 4.1.3 Functional Requirements

- **REQ-1:** Validate mandatory fields such as personal information, research data, and attachments.
- **REQ-2:** Verify attachment file formats (e.g., PDF, DOCX) and integrity.
- **REQ-3:** Log all validation actions for audit purposes.

---

## 4.2 Application Forwarding

### 4.2.1 Description and Priority

After validation, the system allows the Voucher to forward valid applications to the Coordinator or return them to the applicant for corrections. This is a **High Priority** feature as it ensures the application progresses smoothly.

### 4.2.2 Stimulus/Response Sequences

- **Stimulus:** The Voucher selects an application to forward or return.
- **Response:** The system routes the application to the appropriate party or flags it with a return status, providing detailed feedback.

### 4.2.3 Functional Requirements

- **REQ-1:** Enable the Voucher to forward valid applications to the Coordinator.
- **REQ-2:** Allow the Voucher to return applications to applicants with a reason for the return.
- **REQ-3:** Automatically notify stakeholders of the application's updated status.

## 4.3 Notifications and Alerts

### 4.3.1 Description and Priority

The notifications and alerts feature ensures the Voucher is updated on task assignments, rejections, and progress. This is a **Medium Priority** feature to enhance usability and efficiency.

### 4.3.2 Stimulus/Response Sequences

- **Stimulus:** A new or updated task is assigned to the Voucher.
- **Response:** The system sends a notification or alert to the Voucher.

### 4.3.3 Functional Requirements

- **REQ-1:** Notify the Voucher of new or revised applications.
- **REQ-2:** Alert the Voucher when an application is returned at any stage.
- **REQ-3:** Provide updates on application progress or final acceptance.

## ***4.4 Return to Applicant Functionality***

### **4.4.1 Description and Priority**

The return functionality allows the Voucher to reject incomplete or incorrect applications with detailed feedback. This is a **High Priority** feature to maintain application integrity.

### **4.4.2 Stimulus/Response Sequences**

- **Stimulus:** The Voucher identifies an application with missing or incorrect details.
- **Response:** The system flags the application as returned, providing feedback to the applicant.

### **4.4.3 Functional Requirements**

- **REQ-1:** Allow the Voucher to return applications with feedback.
- **REQ-2:** Ensure all returned applications include a clear reason for rejection.

## ***4.5 Access Control and Permissions***

### **4.5.1 Description and Priority**

Role-based access ensures the Voucher can only view and edit fields relevant to their role, maintaining system security. This is a **High Priority** feature for compliance and data protection.

### **4.5.2 Stimulus/Response Sequences**

- **Stimulus:** The Voucher logs into the system or attempts to access restricted data.
- **Response:** The system enforces role-based permissions and restricts unauthorized access.

### **4.5.3 Functional Requirements**

- **REQ-1:** Implement role-based access control (RBAC) for Voucher users.
- **REQ-2:** Maintain an audit trail for all actions performed by the Voucher.



## ***4.6 Final Report Distribution***

### **4.6.1 Description and Priority**

After successful validation, the application is forwarded to the next stage (Preparation/Revision). This is a **Medium Priority** feature, ensuring smooth workflow transitions.

### **4.6.2 Stimulus/Response Sequences**

- **Stimulus:** The Voucher marks an application as valid.
- **Response:** The system forwards the application to the next role automatically.

### **4.6.3 Functional Requirements**

- **REQ-1:** Automatically forward validated applications to the next stage.
- **REQ-2:** Exclude the Voucher from handling final report distribution.

## **5. Operational Admin System Features**

### ***5.1 Application Monitoring***

#### **5.1.1 Description and Priority**

The Operational Admin has full visibility of all applications, their statuses, attached documents, and logs at every stage of the workflow. This is a **High Priority** feature, as it ensures seamless oversight and intervention.

#### **5.1.2 Stimulus/Response Sequences**

- **Stimulus:** The Operational Admin requests access to an application or its details.
- **Response:** The system retrieves and displays the application's full history, status, and associated logs.

#### **5.1.3 Functional Requirements**

- **REQ-1:** Provide a comprehensive dashboard showing all applications, their statuses, and logs.
- **REQ-2:** Allow access to view attached documents for each application.

- **REQ-3:** Display logs with timestamps, user IDs, and actions for transparency.
- 

## 5.2 Override or Return Mechanism

### 5.2.1 Description and Priority

The Operational Admin can override standard workflow transitions, re-routing applications to a previous role or returning them to the applicant. This is a **High Priority** feature to maintain process integrity and flexibility.

### 5.2.2 Stimulus/Response Sequences

- **Stimulus:** The Operational Admin selects an application and initiates a re-route or return action.
- **Response:** The system re-routes the application to the specified stage or returns it to the applicant with a reason.

### 5.2.3 Functional Requirements

- **REQ-1:** Enable re-routing of applications to any previous stage.
  - **REQ-2:** Allow returning applications to the applicant with mandatory feedback.
  - **REQ-3:** Notify relevant stakeholders (applicant, Voucher, Coordinator, etc.) about the status change.
- 

## 5.3 Audit and Tracking

### 5.3.1 Description and Priority

All actions performed by the Operational Admin must be logged, including re-routing, note additions, and status changes. This is a **High Priority** feature to ensure accountability.

### 5.3.2 Stimulus/Response Sequences

- **Stimulus:** The Operational Admin performs an action (e.g., re-routing, adding notes).
- **Response:** The system logs the action with a timestamp and user ID.

### 5.3.3 Functional Requirements

- **REQ-1:** Maintain detailed logs for all Operational Admin actions.
  - **REQ-2:** Include timestamps, user IDs, and descriptions in the logs.
  - **REQ-3:** Ensure logs are accessible for audit purposes.
-

## 5.4 Notifications and Communication

### 5.4.1 Description and Priority

When the Operational Admin re-routes or returns an application, automated notifications are sent to relevant stakeholders. This is a **Medium Priority** feature to ensure efficient communication.

### 5.4.2 Stimulus/Response Sequences

- **Stimulus:** The Operational Admin re-routes or returns an application.
- **Response:** The system sends notifications to all affected parties.

### 5.4.3 Functional Requirements

- **REQ-1:** Generate and send notifications to stakeholders when an application is re-routed or returned.
- **REQ-2:** Provide clear descriptions of the reasons for status changes in the notifications.
- **REQ-3:** Maintain a record of all notifications sent for audit purposes.

## 6. Other Nonfunctional Requirements

### 6.1 Performance Requirements

- The system should be able to complete validation checks within three seconds at most.
- The system can handle multiple Vouchers working simultaneously (Concurrently).
- The system should be able to handle multiple requests at the same time.

### 6.2 Safety Requirements

- The system should automatically back up at the end of every week.
- The system should be able to store and send back-up data for storage in a remote location in case of environmental damage.

### 6.3 Security Requirements

- Encrypted Data: Use SSL/TLS for data in transit, AES at rest.
- RBAC: Voucher role has strictly limited privileges.
- Audit Trails: Log each status change or action (date/time/user).

### 6.4 Scalability Requirements

- System should efficiently handle growing volumes of applications and logs without degrading performance.

## **6.5 Software Quality Attributes**

- Seasonal Load Handling: Must accommodate bursts of applications during promotion cycles.
- Optional Distributed Architecture: If heavy file checks are required, the system should scale horizontally.
- WCAG 2.1 AA: Voucher screens must be usable with assistive technologies.
- Responsive Design: Layout adjusts for tablets or smaller laptops.
- Streamlined Validation UI: Minimal clicks for accept/reject.
- Error Handling & Notifications: Clear messages to reduce confusion.
- Batch Processing (Optional): Bulk validation if needed.

## **6.6 Business Rules**

- The voucher should be able to view all the applications that are sent. They should be able to validate the applications before sending them to different roles for the process to be carried forward.
- The operational admin should be able to view the current state of all applications and view the application in detail. They should be able to return the application from any stage to another.

## **7. Other Requirements**

The other non-functional requirement that is potentially going to be needed in the software system is the legal requirement where applicants should present a photo of their National ID.