AMMAN ARAB UNIVERSITY

Faculty of Information Technology

TRACE

REQUIREMENTS COLLECTION APPROACH

DATE: DECEMBER 12, 2025

Project Title: TRACE - Transfer Recognition and Automated Course Engine

Project Start Date:
November 1, 2025

Projected Finish Date:
June 15, 2026

Students

Sdra Osama Mohammed Awameh	202210368
Rasha Khalid Waleed Alsaleh	202210632

Amman - Jordan
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1. Introduction

This document outlines the systematic approach used to collect, analyze, and document requirements for the TRACE (Transfer Recognition and Automated Course Engine) project. The requirements collection process is critical to ensuring that the system meets the needs of all stakeholders and addresses the core problems identified in the current manual course equivalency evaluation process at the Faculty of Information Technology, Amman Arab University.

2. Requirements Collection Methods

The project team employed multiple methods to ensure comprehensive requirements gathering from all relevant stakeholders and sources:

2.1 Stakeholder Interviews

Structured one-on-one and group interviews were conducted with key stakeholders to understand their needs, pain points, and expectations from the automated system.

Interview Participants:

- **Professors:** Faculty members who currently evaluate transfer requests manually to understand their workflow, decision-making criteria, challenges faced, and desired system features
- **Head of Department (Dr. Mejhem Altarawneh):** To gather requirements for approval workflows, reporting needs, and policy compliance requirements
- **Students (Transfer Cases):** Students who have experienced the transfer process to understand their perspective on delays, clarity of decisions, and documentation requirements
- **Administrative Staff:** Department secretaries and registrar office personnel who handle paperwork and documentation

Interview Topics Covered:

- Current process steps and timeline for evaluating transfer requests
- Common challenges and bottlenecks in the existing manual system
- Decision-making criteria used to determine course equivalencies
- Required information for making accurate equivalency decisions
- Desired features and functionalities in an automated system
- Reporting and documentation requirements
- Security and access control expectations

Interview Schedule:

Interviews were conducted during November 2025, with each session lasting 45-60 minutes. Sessions were documented with detailed notes and audio recordings (with permission) to ensure accuracy in capturing requirements.

2.2 Document Analysis (Existing Transfer Cases)

A comprehensive review of historical transfer case documents was conducted to understand patterns, common scenarios, and data requirements.

Documents Analyzed:

- Previous transfer request forms and student applications (past 3 years)
- Course equivalency evaluation sheets and faculty notes
- Approved equivalency reports and official letters
- University and Ministry of Higher Education policies on credit transfer
- Course syllabi and descriptions from source universities
- Faculty of IT course catalog and curriculum documents
- Bridging program regulations and requirements

Analysis Focus Areas:

- **Data Requirements:** What information is consistently collected and used in transfer evaluations
- **Transfer Scenarios:** Different types of transfers (inter-university, intra-university, bridging) and their unique requirements
- **Decision Patterns:** Common reasons for accepting or rejecting course equivalencies
- **Processing Timeline:** Average time taken from request submission to final decision
- **Documentation Standards:** Required format and content for official reports
- **Common Issues:** Frequently encountered problems such as incomplete documentation or unclear course descriptions

Sample Size:

Analysis included 50+ transfer cases from the past three academic years (2022-2025), covering various transfer scenarios including 20 inter-university transfers, 15 intra-university major changes, and 15 diploma-to-bachelor bridging cases.

3. Requirements Documentation Process

All collected requirements were systematically documented, categorized, and tracked using the following process:

Step 1:
Raw requirements from interviews and document analysis were compiled into a master requirements list

Step 2:
Requirements were categorized as Functional (system features and behaviors) or Non-Functional (quality attributes)

Step 3:
Each requirement was assigned a unique identifier (e.g., FR-01, NFR-01) for traceability

Step 4:
Requirements were prioritized using MoSCoW method: Mandatory (Must have), Desirable (Should have), or Optional (Could have)

Step 5:
Requirements were validated with stakeholders through review meetings

Step 6:
Approved requirements were entered into the Requirements Traceability Matrix (RTM) for ongoing tracking and management

4. Requirements Traceability Matrix (RTM)

The Requirements Traceability Matrix below documents key functional requirements for the TRACE system, linking each requirement to its source, priority, and current status.

Requirement No.	Name	Source	Status
FR-01	Role-Based Access Control	Stakeholder interviews with HOD and professors	Approved. The system will implement three user roles (Admin, Professor, HOD) with distinct permissions for the equivalency evaluation workflow.
FR-02	Automated Course Matching	Document analysis of transfer cases; Professor interviews	Under Review. The matching algorithm will analyze course descriptions and topics to suggest equivalencies with similarity scores.
FR-03	Transfer Request Management	Document analysis of existing workflow; Administrative staff interviews	Approved. The system will manage the complete lifecycle from submission through finalization with status tracking capabilities.
FR-04	Official Report Generation	Document analysis of report templates; HOD requirements	Approved. Reports will be automatically generated in PDF format compliant with university and Ministry standards.
FR-05	Multiple Transfer Scenarios	Document analysis; University policy documents	Approved. The system will support inter-university, intra-university, and bridging transfer scenarios with appropriate rules.
FR-06	Course Data Management	Professor interviews; Admin requirements	Approved. CRUD operations for course management with CSV import functionality will be implemented.
FR-07	Comment and Collaboration	Professor interviews	Approved. Professors and HOD will be able to add timestamped comments and justifications to transfer requests.
NFR-01	System Performance	Technical requirements; Stakeholder expectations	Approved. The system will process course matching within a good amount of time to ensure responsive user experience.
NFR-02	System Security	University IT security policies; Best practices	Approved. The system will implement secure authentication, encrypted passwords, and activity logging to protect sensitive academic data.
NFR-03	System Usability	Faculty interviews; Usability requirements	Approved. The interface will be intuitive and user-friendly, requiring minimal training for faculty to perform their evaluation tasks.
FR-08	Analytics Dashboard	HOD interview; Business case requirements	Under Review. Optional feature displaying key metrics and visualizations. Implementation depends on timeline and resource availability.

5. Requirements Management and Tracking

Throughout the project lifecycle, requirements will be actively managed and tracked to ensure they remain aligned with project objectives and stakeholder needs:

Change Management:

Any changes to approved requirements must be submitted through the formal change control process and approved by project supervisors and the HOD before implementation.

Traceability:

All requirements are traced from their source through design, implementation, and testing phases to ensure complete coverage and validation.

Version Control:

The RTM is maintained as a living document with version control. Current version is 1.0 (December 12, 2025).

Regular Reviews:

Requirements are reviewed bi-weekly during supervisor meetings to validate their continued relevance and address any emerging needs.

6. Conclusion

The requirements collection approach employed for the TRACE project ensures comprehensive coverage of stakeholder needs through multiple complementary methods. The combination of stakeholder interviews and document analysis provides both qualitative insights and quantitative validation, resulting in a robust set of requirements that form the foundation for system design and development. The Requirements Traceability Matrix serves as a central tool for managing and tracking requirements throughout the project lifecycle, ensuring that all stakeholder needs are addressed and that the final system delivers the intended value.