Software Requirements Specification

for

TQF Master

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1. Introduction

1.1 Purpose

The product specified in this document is the TQF Master software (Release x.x, month 2025).
This software assists faculty members, administrators, and academic staff in extracting, analyzing, and visualizing course information from TQF documents. This is the first release of the system, developed as part of the Bachelor of Engineering program at Assumption University.

1.2 Scope of the Project

The scope of this SRS covers the TQF Master desktop application, which is designed for use in academic quality assurance and curriculum management. The system provides the following core capabilities:

- Import TQF files (PDF or DOCX)
- Automatically extract structured course information (course code, title, credits, prerequisites)
- Display extracted data in a tabular format
- Export extracted data as CSV files
- Generate a study plan flowchart based on course dependencies and semester structures

This SRS includes requirements for the software, user interfaces, and data handling components.

1.3 Intended Audience and Reading Suggestions

This document is intended for:

- Developers – to understand functional and non-functional requirements.
- Project Managers – to track deliverables and ensure alignment with specifications.
- QA/Testers – to design appropriate validation and verification tests.
- Faculty Administrators and Curriculum Officers – to understand the capabilities and workflow of the system.

The document is organized into sections that progress from a high-level overview to detailed specifications:

1. Section 1 (Introduction) – Defines the purpose, scope, intended audience, key definitions, and overview of the system.

2. Section 2 (Overall Description) – Describes the product perspective, major features, user classes, operating environment, constraints, and assumptions.
3. Section 3 (**External Interface Requirements**) – Specifies the user interfaces, hardware interfaces, software interfaces, and communication interfaces.
4. Section 4 (**System Features**) – Details the functional features of the system, broken down into individual feature specifications.
5. Section 5 (Other Nonfunctional Requirements) – Outlines performance, safety, security, and software quality attributes.
6. Section 6 (System Architecture and Design) – Provides the high-level architecture, component interactions, database design, and network design.
7. Section 7 (Other Requirements) – Captures any additional system requirements not covered in previous sections.
8. Appendices (A–C) – Include glossary, references, and supporting diagrams or documents.

Reading Suggestions:

- Project Managers and Administrators should first read Sections 1 and 2 for a high-level understanding.
- Developers should focus on Sections 3 for implementation details.
- Testers should emphasize Sections 5-7 to design validation processes.
- End users (faculty and students) may focus on Sections 2 and 4 to understand the user-facing functions.

1.4 Definitions, Acronyms, and Abbreviations

- TQF – Thailand Qualifications Framework
- CSV – Comma-Separated Values
- PDF – Portable Document Format
- DOCX – Microsoft Word Open XML document format
- GUI – Graphical User Interface
- SRS – Software Requirements Specification

1.5 References

2. Overall Description

2.2 Product Perspective

The TQF Master is a standalone desktop application for Windows, designed to simplify and automate the extraction of course data from TQF documents. It does not

require network connectivity once installed. The application includes a user-friendly GUI that guides users through file import, data extraction, and export processes.

2.3 Product Features

Key features include:

- Importing TQF files (PDF or DOCX)
- Automatic extraction of course details
- Displaying extracted data in a tabular view
- Exporting data in CSV format
- Generating study plan flowcharts and exporting them as PDF

2.4 Operating Environment

- Operating System: Windows 10 or later
- RAM: Minimum 4 GB
- Storage: 500 MB free disk space
- Input Devices: Keyboard and Mouse
- Output Devices: Monitor
- Internet: Not required after installation

2.5 Design and Implementation Constraints

- System limited to desktop device.
- Extraction accuracy may depend on the structure and format of TQF files.
- Large files may increase processing time.
- No multi-user or concurrent access functionality is implemented.

2.6 User Documentation

The software will provide the following user documentation:

- TQF_UserManual.pdf (PDF format)
    - Provides an overview of the software and explains the functionality available to users.
    - Includes step-by-step instructions with screenshots.

3. External Interface Requirements

3.1 User Interfaces

The system provides a GUI that includes buttons and menus for:

- Browsing TQF files
- Extracting course data

- Saving/exporting data
- Generating flowcharts
- Exiting the application

3.2 Software Interfaces

The system interacts with local file systems for importing and exporting files. It supports the following formats:

- Input: PDF, DOCX
- Output: CSV, PDF

4. System Features

4.1 User Interfaces
4.2 Hardware Interfaces
4.3 Software Interfaces
4.4 Communications Interfaces

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- The system shall process a standard TQF file within *** seconds on a system meeting minimum specifications.
- It shall support large documents (up to *** MB) without crashing.

5.2 Safety Requirements

- The software shall ensure that all data extracted from files is read-only and not altered in the source document.

5.3 Security Requirements

- As TQF Master operates offline, no network security features are required. However, file operations shall comply with local system permissions.

5.4 Software Quality Attributes*****Not Sure

- Reliability: 99% uptime expected under normal use.
- Usability: GUI designed for intuitive use with minimal training.
- Maintainability: Modular design allows for easy updates.

- Portability: Compatible with Windows 10 and newer.

6. Other Requirements

Appendix A: Glossary