Functional Requirements Document (FRD)
MARSU Library Management System (LiMS)

Version: 2.0 – Post-Scoping Alignment

Status: Draft for Review

Document Control

Role	Name / Department	Date	Version	Remarks
Author	Business Analyst Team, ICT Development Office	Oct 2025	2.0	Draft created based on LRC Manual & FRD r1
Reviewed by	Library and Learning Resource Center (LLRC)	Oct 2025	2.0	Alignment with actual library processes
Approved by	ICT Development Office	—	—	Pending

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1. INTRODUCTION

The Library Management System (LiMS) of Marinduque State University (MarSU) is a digital platform designed to automate and centralize library operations across all campuses. It streamlines key functions such as cataloging, circulation, acquisition, and e-resource management to ensure efficient access to learning materials. The system supports the university's commitment to academic excellence by enhancing resource visibility, operational accuracy, and compliance with CHED standards.

1.1. PURPOSE

The LiMS aims to improve the management and accessibility of the university's learning resources through automation and integration. It enables librarians and users to efficiently manage, search, borrow, and monitor library assets, both physical and digital.

The system's primary goals are to:

- Simplify library transactions and reduce manual errors.
- Enhance accountability and reporting accuracy.
- Provide real-time data for decision-making and resource optimization.

In essence, the LiMS modernizes MarSU's library services, ensuring a seamless, user-friendly, and data-driven academic resource environment.

1.2. SCOPE

In-Scope

The LMS will automate and integrate the following functions:

1. **Acquisition Management**

   o Request, selection, and approval of library materials.

   o Supplier tracking and order receipt validation.

   o Budget tracking for acquisitions.

2. **Cataloging and Metadata**

   o Standardized MARC21 cataloging with automated indexing.

   o Assignment of barcodes and classification codes (DDC system).

   o Metadata tagging for both physical and digital resources.

3. **Circulation and Borrowing**

   o Borrow, renew, return, and reserve functions for patrons.

   o Self-check-in/out kiosk integration (for future implementation).

   o Fine and penalty computation for overdue materials.

4. **Member Management**

   o Registration and verification of patrons (students, faculty, staff).

   o Role-based permissions for librarians and patrons.

   o Integration with campus SSO (student/faculty accounts).

5. **Reporting and Analytics**

   o Real-time dashboards for borrowing statistics, inventory, and fines.

   o Reports on popular books, author trends, and patron demographics.

6. **Digital Resource Management**

   o Access to e-books, journals, and databases with authentication.

   o Analytics for usage patterns and user access.

7. **System Administration**

   o User access control, data backup, and cloud deployment options.

   o Configuration for multi-campus integration and remote access.

Out of Scope

Function	Reason for Exclusion
Physical renovation or hardware setup (CCTV, scanners, kiosks)	Handled by Infrastructure and Facilities.
Student account registration	Managed by the Registrar's Office.
Procurement and bidding of library materials	Managed by the Bids and Awards Committee.
Non-library system integrations (HR, Accounting)	Beyond LMS scope; integration only with SSO and CMS.
Internet café or printing services	Separate operational systems within LLRC.

2. SYSTEM OVERVIEW

The **Library Management System (LiMS) of Marinduque State University (MarSU)** is a centralized digital platform that streamline the core operations of the MarSU's Library and Learning Resource Center (LLRC). It supports the **management of library materials, circulation, cataloging, online public access (OPAC), digital resources, and library member services.**

The LMS replaces manual recordkeeping with **processes that improve accuracy, efficiency, and accountability while ensuring compliance with the university's policies and Commission on Higher Education (CHED)** standards for academic resource management.

3. GLOSSARY

Term	Definition
OPAC	Online Public Access Catalog – the system for searching and reserving library materials.
Circulation	Process of borrowing, returning, and renewing library materials.
Acquisition	Process of selecting, ordering, and receiving new materials for the library.
Cataloging	Classification and indexing of books, journals, and digital media.
E-Resources	Electronic resources such as e-books, databases, and online journals.
Hold Request	Function allowing users to reserve a checked-out book.
Patron	Registered user of the library (student, faculty, or staff).
LRC	Learning Resource Center, the official name of the university library.

4. LIST OF FUNCTIONAL REQUIREMENTS

| ID	Function	Description
FR-01	Acquisition Workflow	Manage selection, ordering, and receipt of library materials with supplier tracking.
FR-02	Cataloging	Encode metadata, assign call numbers, and update searchable index.
FR-03	Circulation	Automate borrowing, returning, and renewal processes with real-time status updates.
FR-04	Reservation Management	Enable online book reservation and hold requests.
FR-05	Penalty Computation	Automatically calculate overdue fines based on days delayed.
FR-06	Membership Management	Register and manage users with integration to campus SSO.
FR-07	E-Resources Access	Authenticate and log user access to e-books and databases.
FR-08	Reporting Module	Generate usage, acquisition, and circulation reports.
FR-09	Admin Configuration	Set user roles, privileges, and backup schedules.
FR-10	Analytics Dashboard	Display graphical trends for borrowing and digital resource usage.

5. SUPPORTING MODELS

Workflow Model

Procurement → Cataloging → Circulation → Return → Reporting → Archiving

- Books and materials are acquired, cataloged, circulated, and returned automatically.

- System tracks overdue items, fines, and generates reports for management.

Mapping Table:
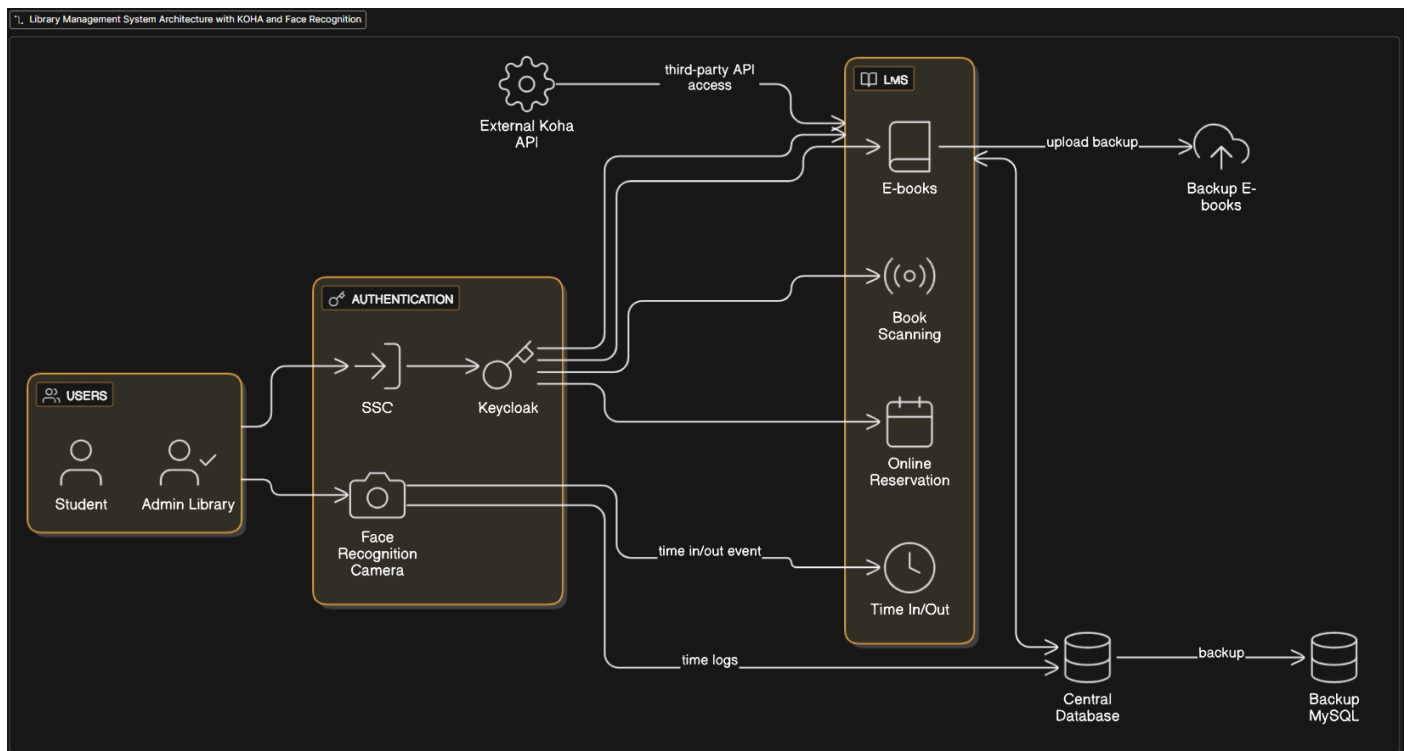
Entities include:

- Book/Material (BookID, Title, Author, Category, Barcode, Availability)

- Patron (PatronID, Name, Role, Contact, BorrowingLimit)

- LoanTransaction (LoanID, BookID, PatronID, BorrowDate, ReturnDate, Status)

- Supplier (SupplierID, Name, ContactInfo, Terms)

- E-Resource (ResourceID, Title, AccessURL, LicenseExpiry)

- UserAccount (UserID, Username, Role, Permissions)

6. NON-FUNCTIONAL REQUIREMENTS

Category	Requirement
Scalability	Must support all campuses and concurrent patron access.
Security	MFA, SSL encryption, and audit logging required.
Availability	Cloud-hosted with 99.9% uptime.
Usability	Accessible via desktop and mobile devices.
Performance	Search results must load in <3 seconds for 10,000+ items.
Maintainability	Modular design for easy upgrades and maintenance.
Compliance	CHED, and COA-aligned library operations.

7. RAID (Risks, Assumptions, Issues, Dependencies)

Type	Description	Mitigation
Risk	Data migration errors from old Excel-based inventory.	Conduct dry-run and verification prior to production.
Assumption	Existing barcodes are valid and usable for all materials.	Audit before system rollout.
Issue	Network latency in branch libraries may affect access.	Deploy local cache or offline sync.
Dependency	Campus SSO and CMS integration readiness.	Coordinate with ICT Office for API integration.

8. VALIDATION

1. **Functional Testing:** Verify core modules (Cataloging, Circulation, Reporting).

2. **User Acceptance Testing (UAT):** Validate workflows with librarians and patrons.

3. **Integration Testing:** Test connection with SSO and CMS.

4. **Performance Testing:** Assess search speed and report generation under load.

5. **Security Testing:** Confirm MFA and encryption compliance.

9. REFERENCE

- *MarSU Asset Management Terms of Reference (Item 3.3)*

LINE NO.	DESCRIPTION AND SPECIFICATION	STATEMENT FOR COMPLIANCE
3.3	**Library Management System (E-Library)** We aim to create a new era of excellence in library services by implementing cutting-edge systems. By continually dedicating ourselves to upgrading and implementing a new library management system and library entry log-in system. We aim to improve library security, streamline access control, and gather valuable information on library usage patterns. To meet the evolving requirements of modern academia, this commitment requires the creation of an information hub that is both advanced and responsive. Utilizing this innovative approach, we intend to create a secure, more productive, gender-sensitive and user-friendly environment for all male and female library patrons. By proactively providing better services and resources, the academic community is being shaped by the library at Marinduque State College, which is at the forefront of innovation and shaping the academic community.	**Comply**
3.3.1	License: Perpetual	Comply
3.3.2	The proposed system must run in a unified, multi-cloud microservices platform.	Comply
3.3.2.1	Must have the capability to manage and store the database of the members	Comply
3.3.2.2	Books must be issued with bar codes that contain the book's title, author, subject, and publication date.	Comply
3.3.2.3	Catalogue of books, journals and library databases must be accessible online.	Comply
3.3.2.4	Must have self-check-in and self-check-out books, and the members of digital libraries can log in, search for, choose, issue, and return books on their own	Comply
3.3.2.5	Must have Dashboard for the librarians to maintain each member's account and collect membership payments	Comply
3.3.2.6	The system must be capable of assessing and calculating penalties for late returns.	Comply
3.3.2.7	The system must enable the library staff to manage the inventory of library resources, including tracking the location and availability of resources.	Comply
3.3.2.8	The system must provide statistical reports and analysis of library usage and resources. The reports will include information such as the number of resources borrowed, the most popular resources, and the patron demographics.	Comply
3.3.2.9	The system must provide the librarian the information what books are out, due for return and returned.	Comply
3.3.2.10	Must provide a seamless process of any book's whereabouts at any given time.	Comply
3.3.2.11	Must have analytics to show, but not limited to, frequently borrowed or delayed return books, users with good standing/bad standing, frequently not available, popular authors and topics.	Comply
3.3.2.12	Can be accessible through mobile app for reservation, borrowing, scanning or searching for books. Mobile apps must also provide the capability to complain or make reports.	Comply
3.3.2.13	Must be open source, web based applications with API to connect with compatible Campus Management System.	Comply

3.3.2.14	Must support opensource databases such as Postgres	Comply
3.3.4	**General Requirements**	Comply
3.3.4.1	Managing inventory and cataloging	Comply
3.3.4.2	Circulation Management	Comply
3.3.4.3	Library Patron	Comply
3.3.4.4	Library Resources Reservation	Comply
3.3.4.5	Reporting and Analytics	Comply
3.3.4.6	Mobile Accessibility	Comply
3.3.4.7	System Security	Comply
3.3.4.8	Cloud-Based Hosting/Cloud redundancy	Comply
3.3.4.9	Must integrate to existing backup solution	Comply

- *MarSU LRC Operations Manual, 2024*

- *CHED Memorandum Orders on Library Standards*

- *COA Circular 2020-006 – Government Property and Resource Guidelines*

10. APPROVALS

Position	Name of Approver	Approval Signature	Date (DD/MMM/YYYY)
Director ICTU			