

# Proposals

Here is a refined and tailored proposal draft for a Knowledge Management (KM) Information System suitable for a state university in the Philippines, incorporating local context and best practices from Philippine higher education institutions:

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## **Proposal: Knowledge Management (KM) Information System for Laguna State Polytechnic University**

### **Introduction**

A Knowledge Management (KM) Information System designed for [University Name], a Philippine state university, aims to foster a culture of knowledge creation, sharing, and application across academic, research, and administrative units. This system will leverage advanced Artificial Intelligence (AI) and collaborative technologies, enhancing institutional performance aligned with national policies and local educational priorities.

### **Objectives**

- Establish a centralized, secure, and scalable repository for institutional knowledge including research outputs, course materials, policies, and best practices.
- Enhance information access and decision-making through AI-powered search, classification, and personalized content delivery.
- Support collaborative knowledge sharing and co-creation within university communities.
- Ensure compliance with Philippine data privacy regulations (RA 10173 - Data Privacy Act) and higher education quality assurance frameworks.
- Promote continuous improvement via analytics, feedback, and adaptive system enhancements.

## **Core Features**

### **Centralized Knowledge Repository**

- Unified platform to store diverse knowledge artifacts from faculty research, syllabi, institutional records, and extension program outputs.
- Integration with existing university systems: LMS, Student Information Systems, Research Management Portals.

### **Intelligent Search and AI-driven Content Management**

- AI-powered search with natural language processing supporting searches in English and Filipino, relevant to Philippine academic contexts.
- Automated tagging with contextual awareness of Philippine disciplines and research themes, using machine learning models fine-tuned to local terminologies.
- Version control with audit trails respecting collaborative, multi-author document workflows common in Philippine universities.

### **Collaboration and Engagement Tools**

- Discussion forums, Communities of Practice, and annotation tools supporting pedagogical innovation, research collaboration, and extension project coordination.
- Gamification tailored to Philippine academic culture encouraging faculty and student participation in knowledge sharing and mentoring.

### **Advanced AI Functionalities**

- Virtual assistants supporting FAQs and navigation in both English and Filipino.
- Predictive analytics dashboards reporting on resource usage, research impact aligned with Commission on Higher Education (CHED) key performance indicators.
- Duplicate detection and content quality validation mechanisms adapted to typical Philippine academic outputs.

## **Security and Governance**

- Role-based access controls differentiated by administrator, faculty, student, extension worker, and external partner roles consistent with university policies.
- Logging, audit trails, and compliance checks with the Data Privacy Act and CHED guidelines.
- Data encryption and anonymization, especially for student records and sensitive research data.

## **Integration and Accessibility**

- API layers for connection with Google Workspace, Office365, and indigenous knowledge databases to support Philippine cultural heritage projects.
- Mobile-optimized interfaces ensuring accessibility for faculty and students in regions with limited connectivity.

## **Maintenance and User Support**

- Automated backups, disaster recovery aligned with university IT governance.
- Help desk integration with bilingual chatbot (English/Filipino) and escalation workflows.

- Continuous system tuning based on user feedback collected via surveys in multiple Philippine languages.

## **Implementation Approach**

- Adopt a phased deployment using the Modified Waterfall model, allowing specification, design, development, testing, and iterative improvements.
- Engage key university stakeholders, including CHED-accredited Centers of Excellence and Development faculties, for participatory design and change management.
- Pilot deployment in select colleges and administrative units with subsequent university-wide rollout.

## **Expected Impact**

- Enhanced research collaboration and dissemination increasing university's national and international visibility.
- Improved teaching and learning through ready access to curated and personalized content.
- Strengthened extension services empowered by integrated knowledge capture and sharing amongst local communities.
- Reinforced institutional compliance and data governance supporting transparent and accountable university administration.

<b>Phase</b>	<b>Activities</b>	<b>Timeline</b>
Project Initiation	Project approval, stakeholder mapping, formulation of technical working group	Month 1

Requirements and Planning	Requirements gathering, policy review, benchmarking with other Philippine HEIs, initial system architecture	Month 2 - 3
System Design	Prototype UI/UX, draft database schema, draft API and integration plans, develop information governance	Month 4 - 5
Development	Backend and frontend development, AI/ML integration, content migration, initial test data population	Month 6 - 9
Iterative Testing	Internal and pilot user testing, security/privacy validation, feedback collection, adjustments	Month 10 - 11
Pilot Implementation	System rollout to initial colleges/departments, user training, change management, technical support	Month 12
Full Deployment	University-wide roll-out, extended system documentation, monitoring begin, helpdesk and support launch	Month 13 - 14
Evaluation and Enhancement	Usage analytics, feedback surveys, refinement of AI models, policy updates, and reporting to stakeholders	Month 15 (ongoing)

features and functions table for a Knowledge Management Information System (KMIS) for a Philippine state university, including Role-Based Access Control (RBAC):

Feature / Function	Description	Admin	Faculty	Student	External Partner

Centralized Knowledge Repository	Store, organize, and retrieve research outputs, teaching materials, policies, and guides	Full access/manage	Add/edit/view	View/download	Limited view
AI-powered Search and Retrieval	Contextual and multilingual search across all resources, with filtering and ranking	Full search	Full search	Filtered search	Filtered search
Automated Tagging and Classification	AI-based content tagging for discipline, topic, and context	Manage/override	Review/suggest	-	-
Version Control and Document History	Track edits, rollback, restore previous versions	Full control	Edit/rollback	View history	View history
Discussion Forums and Communities	Collaborative spaces for sharing knowledge, peer review, mentoring	Create/manage	Moderate/participate	Participate	View/comment
Annotation and Co-authoring Tools	Inline comments, suggestions, collaborative document editing	Manage/edit	Edit/comment	Suggest/comment	Suggest/comment

Personalized Recommendation Engine	AI-driven recommended content and connections	Configure parameters	Receive suggestions	Receive suggestions	-
Virtual Assistant / Chatbot	Automated FAQ, guides, search support (English/Filipino)	Configure/train	Interact	Interact	Interact
Predictive Analytics & Dashboards	Resource and usage analytics, trend forecasting	Full access/report	View dashboard	-	-
Duplicate Detection/Quality Validation	Flagging redundant or low-quality content	Override/confirm	Review/suggest	-	-
Integration/API Management	Linking with other university systems and databases	Configure/manage	Request integration	-	Request integration
Mobile/Offline Access	Responsive web app/support for field/research/faculty extension	Full access	Full access	Full access	Limited access

Role-Based Access Control (RBAC)	Configure user roles, permissions, audit logs	Full configure/audit	Request changes	-	-
Data Privacy and Compliance	Policies on encryption, anonymization, Data Privacy Act compliance	Enforce/manage	Comply/training	Comply/training	Comply/training
Audit Trails and Usage Reports	Track system changes, document access, and user activities	View/full report	View limited report	View own activity	View own activity
Helpdesk/Bilingual Chatbot Integration	IT support, ticketing, escalation, assistance in Filipino & English	Manage tickets	Submit tickets	Submit tickets	Submit tickets
Feedback Loop/Continuous Improvement	Survey collection, system update based on feedback	Analyze/update	Respond/feedback	Respond/feedback	Respond/feedback

This table structures the KMIS features, defining distinct permissions for admins, faculty, students, and external partners, ensuring appropriate data security and user responsibilities. Here is a Philippines-relevant features and functions table for a university Knowledge Management Information System (KMIS), highlighting Role-Based Access Control (RBAC) for common user groups:

Feature/Function	Description	Admin	Faculty	Student	External Partner
Central Repository	Store and organize research, policies, manuals, and teaching resources	Manage, edit, delete	Add, edit, view	View, download	View
AI-powered Search & Retrieval	Multilingual/natural language search within knowledge base	Full	Full	Filtered	Filtered
Automated Tagging & Classification	Machine learning-based contextual tagging of documents	Override, manage	Suggest, review	-	-
Version Control & Document History	Track edits, restore versions, collaborative authoring	All actions	Edit, rollback	View history	View history
Discussion Forums & Communities	Peer exchange spaces, mentoring, thematic collaboration	Moderate	Moderate, post	Participate	Participate

Annotation & Co-authoring Tools	Comment, annotate, and collaboratively edit materials	Manage, edit	Edit, annotate	Suggest, comment	Comment
Personalized Recommendation Engine	Suggests content and connections based on role and activity	Configure, audit	Receive suggestions	Receive suggestions	-
Chatbot / Virtual Assistant	Automated help, navigation (English/Filipino)	Configure, train	Query, interact	Query, interact	Query, interact
Analytics & Dashboards	Data usage, trends, impact, predictive reporting	Full access	View dashboard	-	-
Duplicate Detection & Quality Validation	Flags/reviews redundant or low-quality entries	Confirm, override	Review, suggest	-	-
API Integration & Data Connectors	Sync with other campus and external systems (LMS, SIS, libraries)	Configure, manage	Request integration	-	Request
Mobile & Offline Access	Responsive/mobile web for remote access, offline sync	Full	Full	Full	View

RBAC: Role-based Access Control	Set/modify roles, permission tiers, audit review	Full configure	Request change	-	-
Data Privacy (RA 10173 compliance)	Encryption, anonymization, privacy enforcement	Enforce	Comply, train	Comply, train	Comply, train
Audit Trails & Usage Logs	Tracks edits, access, and system actions for accountability	Full access	Own activity log	Own activity log	Own activity log
Helpdesk & Escalation	IT support, ticketing, chatbot in Filipino and English	Manage, assign	Submit request	Submit request	Submit request
Feedback & Adaptive Improvement	Survey/upload suggestions, update algorithms based on feedback	Review, update	Give feedback	Give feedback	Give feedback

Each function in the table clarifies typical actions and restrictions under RBAC, ensuring that system access and data governance reflect campus policies and Philippine compliance standard

Here is a use case for the proposed Knowledge Management (KM) Information System for a state university in the Philippines:

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# Use Case: Accessing and Sharing Research Materials in the KM Information System

## Actors:

- Faculty Member
- Student
- Administrator
- External Partner (e.g., collaborating researcher)

## Preconditions:

- Users are registered in the system with appropriate roles assigned via Role-Based Access Control (RBAC).
- Content such as research papers, syllabi, policy documents, and multimedia materials are uploaded and classified in the central repository.

## Basic Flow:

1. **User Authentication:** User logs into the KM system via web or mobile platform.
2. **Search/Discovery:** User inputs query via natural language or keywords in English or Filipino; system returns relevant tagged results with filters (e.g., by discipline, date).
3. **Document Viewing:** User selects document, reviews metadata (author, version, last update), and downloads or views online.
4. **Collaboration:** User adds comments or annotations. If authorized (e.g., faculty), edits or uploads supplementary materials related to document.
5. **Sharing:** User shares resource with specified internal users or external partners with access permissions.

6. **Tracking and Analytics:** System logs access, downloads, and user engagements linked to research impact dashboards monitored by administrators.

#### **Alternative Flows:**

- **Virtual Assistant Support:** User asks the chatbot for help in locating materials or performing platform functions, receiving guided assistance in English or Filipino.
- **Version Rollback:** Upon detecting content issues, authorized users revert to a previous document version.
- **Duplicate Alert:** System alerts users if uploading content similar to existing documents to maintain repository quality.

#### **Postconditions:**

- User successfully accesses required knowledge resources for teaching, learning, or research.
  - Collaborative annotations and updated content improve the KM repository.
  - Administrators receive analytics to inform policy and resource allocation decisions.
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