

NARAYANA MEDICAL COLLEGE, NELLORE

E-GOVERNANCE ARCHITECTURE DOCUMENT

1. Title

Institutional E-Governance Architecture

2. Purpose

This document defines the overall digital architecture framework of Narayana Medical College, covering data systems, user hierarchies, process automation, and integration among academic, hospital, and administrative functions.

3. Overview of E-Governance System

Narayana Medical College uses a modular and integrated architecture combining multiple software platforms and databases for efficient management of academic, financial, and hospital functions. The architecture follows a three-tier model:

1. Presentation Layer (Front End) – User interface for staff, students, administrators, and patients.
2. Application Layer (Middleware) – Business logic, workflow automation, and software services.
3. Data Layer (Back End) – Secure databases for academic, hospital, and financial records.

4. Architecture Components

Subsystem	Platform / Software Used	Primary Function	Data Source / Flow
Administrative Management	ERP / MIS	Handles attendance, circulars, office orders, payroll, leave management	HRMS → ERP → Principal / Management Dashboard
Finance & Accounts	Tally ERP / Integrated Finance Module	Budget allocation, expenditure tracking, payroll	Accounts → ERP → Finance Committee
Academic Management	LMS (Google Classroom / ERP Academic Module)	Lesson plans, attendance, assignments	Faculty Upload → LMS → Academic Dean / IQAC

Examination System	Digital Exam Portal	Marks entry, tabulation, result generation	Faculty → Exam Cell → Controller → ERP Archive
Hospital Information System	Integrated HIS	Patient registration, billing, EMR, lab reports	OP/IP → HIS Database → Hospital Admin Dashboard
Library System	Koha / E-Library	Book circulation, online catalogue, digital access	Library Server → ERP → Students/Faculty
HR Management	HRMS	Recruitment, promotion, performance appraisal	HR → HRMS → Principal Office
IQAC & Quality Data	IQAC Portal	Data entry for NAAC/NIRF/NMC	Departments → IQAC Portal → Central Server
Website & Communication	Official Website / MS Teams / Email	Notices, circulars, digital communication	IT Cell → Web Server / Cloud Email
Student Portal	ERP / Mobile App	Online attendance, results, feedback, fee details	Academic Server → ERP → Student Interface

5. Data Flow Architecture

- a. Data Input Sources: Faculty, Students, Hospital Staff, Accounts, Administration.
- b. Processing: Each module processes data through its own workflow using integrated APIs and middleware that communicate with the central database.
- c. Output: Dashboards for Principal / IQAC, reports for NMC/NAAC/NIRF/NABH, certificates, receipts, and notifications.

6. Network and Infrastructure Layout

- LAN Connectivity: 1 Gbps campus backbone with Wi-Fi in all departments.
- Servers: Dedicated on-premise ERP server and cloud-based HIS/LMS backup.
- Access Controls: Role-based user authentication.
- Data Backup: Daily incremental and weekly full backups.
- Cybersecurity: Firewalls, antivirus, and SSL encryption across portals.

7. Integration Framework

Integration Type	Connected Systems	Mode of Integration
Data Exchange	ERP ↔ HIS ↔ Accounts	API-based sync

Document Sharing	ERP ↔ IQAC Portal	Secure file transfer
User Authentication	ERP ↔ HRMS	Single Sign-On (SSO)
Feedback & Reports	LMS ↔ IQAC ↔ Management	Real-time dashboards

8. Governance and Maintenance

- E-Governance Committee chaired by the Principal supervises system upgrades.
- IT Department manages implementation, security, and uptime.
- Annual audits verify data integrity and compliance.
- Training programs ensure user competence and efficiency.

9. Future Enhancements

1. Implementation of AI-based analytics for institutional performance.
2. Migration to hybrid cloud infrastructure.
3. Integration with DigiLocker and National Academic Depository.
4. Development of mobile applications for faculty and students.

10. Approval

Approved by: College Council / Governing Body

Date of Approval: 11-06-2024

Principal, Narayana Medical College



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