Project Design Phase
Technology Stack

Date	1 November 2025
Team ID	NM2025TMID03588
Project Name	Educational Organization using ServiceNow
Maximum Marks	4 Marks

Architecture Description :

The solution is entirely implemented on the *ServiceNow* platform, serving as the core infrastructure for automation, data management, and process orchestration. The architecture is tailored to facilitate the processing of student service requests, including admissions, certification issuance, academic support, and administrative inquiries.

The system comprises multiple interconnected components:

User Interfaces (UIs): Dedicated student and staff portals offer intuitive interfaces for request submission and status monitoring.

Workflow Automation (Logic): The ServiceNow Workflow Engine encodes business processes, enabling automated request routing, approval workflows, and task transitions across organizational units.

Data Storage (Database): All pertinent data—including student records, request details, and transaction histories—are securely maintained within ServiceNow tables (e.g., Student Database).

Notification Services (Communication): Integrated communication services automatically dispatch email and in-platform notifications upon request submission, approval, rejection, or closure events.

Reporting and Analytics (Dashboards): This module delivers real-time visual analytics, allowing administrators and staff to monitor request volumes, identify bottlenecks, and assess team performance through configurable dashboards.

Workflow:

Initiation: The student authenticates and accesses the Request Portal interface.

Submission: The student selects a specific service (e.g., "Certificate Request") and completes the designated input form.

Processing: Upon submission, the Workflow Engine autonomously generates a new request record and routes it to the designated assignment group (e.g., "Registrar's Office") based on predefined routing rules.

Review: The designated Department Reviewer evaluates the request and either approves or rejects it through the approval interface.

Communication: The Notification Service automatically dispatches an email notification to the student, conveying the approval or rejection status.

Resolution: The final request status, along with all relevant metadata, is persisted in the Student Database for purposes of reporting, audit trail, and record-keeping.

Components and Technologies:

The following table lists the components and technologies used in developing the ServiceNow-based Educational Organisation Management System.

Component	Technology Used	Description
Platform	ServiceNow Cloud Platform – a low-code enterprise platform-as-a-service (PaaS) that enables workflow automation, data integration, and centralized service management.	Serves as the foundational platform supporting process automation, incident tracking, and record management.
Frontend	HTML5, CSS3, JavaScript, AngularJS – used to create responsive, dynamic, and interactive web interfaces integrated with ServiceNow portals.	Develops user-friendly interfaces for forms, dashboards, and portals accessible by students and staff.
Backend	GlideScript, GlideAjax, and Script Includes – JavaScript-based ServiceNow scripting languages used for implementing server-side logic and automation.	Handles data processing, automation workflows, and server-side operations for institutional management.
Database	ServiceNow MySQL Database – a cloud-hosted relational database optimized for ServiceNow, supporting indexed queries and secure storage.	Stores academic data, course details, and institutional records ensuring high performance and scalability.
Integration	REST API, SOAP API, IntegrationHub – used for connecting ServiceNow with external applications like HRMS, email systems, and learning platforms.	Provides seamless data flow and communication between ServiceNow and third-party systems.
Automation	Flow Designer, Workflow Editor, and Business Rules – visual and code-based automation tools within ServiceNow.	Automates routine approvals, notifications, and form validations to improve efficiency.
Testing Tools	Automated Test Framework (ATF), Unit Testing Scripts – tools provided by ServiceNow for end-to-end and unit testing.	Ensures workflow accuracy and validates functionality before deployment.
Version Control	GitHub, GitLab, Git CLI – used for maintaining code repositories, versioning, and collaborative development.	Tracks modifications, enables rollback, and facilitates teamwork among developers.

Deployment	ServiceNow Update Sets and Application Repository – tools for packaging and deploying customizations between instances.	Simplifies migration of developed modules and configurations between environments.
Security	Role-Based Access Control (RBAC), Encryption, Multi-Factor Authentication (MFA).	Protects sensitive data by ensuring access control and identity verification.
Communication	Slack API, Microsoft Teams Integration, Email Notifications via ServiceNow Notification Engine.	Provides real-time communication, alerts, and task updates for staff and administrators.

Conclusion:

The technology stack for the Educational Organization Management System leverages ServiceNow's Platform-as-a-Service (PaaS) infrastructure, integrated with web development frameworks, enterprise integration protocols, and automation tools. This cohesive architecture facilitates comprehensive workflow automation, reliable communication channels, and secure handling of institutional data, thereby enhancing operational efficiency and supporting digital transformation initiatives within the educational institution.