Students in engineering colleges face fragmented access to academic resources, announcements, and opportunities. Currently, information is scattered across WhatsApp groups, notice boards, and email, leading to missed deadlines, poor communication between students and faculty, and difficulty in accessing study materials. Additionally, students struggle to find relevant information from their own notes and documents, often spending hours searching through PDFs and files manually.

PROPOSED SOLUTION:

We propose "Students@Sasi Community" - an integrated college management platform with an AI-powered knowledge assistant. The platform centralizes all college activities into a single, accessible web application with role-based access for students and faculty.

Core features include: authenticated user access with email verification, year and branch-wise content organization, real-time announcements carousel, file upload system for notes, PYQs and MCQs, query management system connecting students directly with HODs, and an opportunities board for internships and placements.

The standout innovation is our AI Knowledge Assistant using Retrieval-Augmented Generation (RAG). Students can upload their study materials (PDFs, DOCX, notes) which are processed through a vector database using ChromaDB. When students ask questions, the system performs semantic search across their personal knowledge base and generates contextual answers with precise citations using Ollama (a free, locally-running LLM). This eliminates hours of manual searching through documents.

Our technical stack ensures privacy and cost-effectiveness: Python Flask backend, PostgreSQL database for robust data management, ChromaDB for vector embeddings, sentence-transformers for semantic search, and Ollama's Llama 3.2 model for natural language understanding - all running locally without requiring expensive API subscriptions.

The platform promotes sustainable education (SDG 4) by democratizing access to AI-powered learning tools, and supports industry innovation (SDG 9) by showcasing modern RAG architectures. Security features include JWT authentication, password hashing, role-based permissions, and email verification. This solution transforms

how students interact with academic content, making learning more efficient, accessible, and intelligent.