THE AEGIS PROTOCOL

Building the Unified Digital Citadel

THE PROLOGUE: THE AGE OF CHAOS

For years, the Great Institute has functioned in fragmented silence. Knowledge is scattered across unofficial drives, grievances vanish into administrative voids, and students wander lost between hostel blocks and academic buildings. Scholars pool their resources for transport in secret WhatsApp groups, research opportunities reach only the chosen few, and lost belongings drift unclaimed in the shadows of campus corners.

The chaos must end.

You are the **Digital Architects**, tasked with forging the **AEGIS Platform** , a unified web ecosystem that binds faculty, students, and administration into a harmonious digital collective. Your mission is to build a realm where transparency reigns, efficiency flows, and every voice finds its echo.

The question is not whether you can build it. The question is: *How well will you architect the future?*

THE SEVEN PILLARS

A Quick Overview of the Citadel's Architecture

🔴 THE FOUNDATION (Core Pillars - Mandatory)

PILLAR I: Identity & Governance

The Iron Gate, High Command Dashboard & Aegis Security

- **The Iron Gate:** Role-based authentication (Student, Faculty, Authority, Admin) via Institute email
- **High Command Dashboard:** Centralized admin control with analytics, system monitoring, and user management
- **The Aegis Security:** RBAC, encryption and secure data handling

PILLAR II: Voice (Grievance Management)

The Silent Scroll, The Watcher's Eye & Automated Intelligence

- **The Silent Scroll:** Anonymous/identified issue submission with categorization, priority, and location tagging

- **The Watcher's Eye:** Real-time status tracking (Submitted → Under Review → In Progress → Resolved) with authority remarks
- **Automated Intelligence (Bonus):** Daily email summaries and high-priority alerts

PILLAR III: Fate (Academic Mastery)

The Destiny Manager, The Vault of Knowledge & Chronos Calendar

- **The Destiny Manager:** Course enrollment tracker, credit calculator, attendance logger and course manager
- **The Vault of Knowledge:** Repository for previous year papers and study materials
- **Chronos Calendar:** Academic calendar with personalized reminders and deadlines

PILLAR IV: Opportunity (Internships & Tasks)

The Professor's Call & The Scholar's Ledger

- **The Professor's Call:** Faculty post internships/research opportunities; students browse and apply
- **The Scholar's Ledger:** Personal task manager for academic goals and project tracking

🟢 THE EXPANSION (Bonus Pillars - Optional)

PILLAR V: The Commons (Life & Trade)

The Caravan Pool, Mercenary Guild & Relic Recovery

- **The Caravan Pool:** Ride-sharing for coordinated travel
- **The Mercenary Guild:** Campus freelancing marketplace
- **Relic Recovery:** Lost & Found portal with image listings

PILLAR VI: Connection (Community & Safety)

The Hall of Echoes, Pathfinder's Map & Guardian's Flare

- **The Hall of Echoes:** Reddit-style discussion forum
- **The Pathfinder's Map:** Interactive campus navigation
- **The Guardian's Flare:** One-tap SOS emergency system

PILLAR VII: The Spirit (Clubs & Announcements)

The Guild Halls & Universal Array

- **The Guild Halls:** Club management with member recruitment and events
- **The Universal Array:** University-wide announcement system with email integration

DETAILED REQUIREMENTS

Core Pillars (All Four Are Mandatory)

Pillar I: Identity & Governance

(The Iron Gate, High Command Dashboard & The Aegis Security)

Build the foundation of the platform with secure access control and administrative oversight.

Required Features:

- Role-based authentication system supporting four user types: Student, Faculty, Authority, and Admin
- Authentication must be restricted to Institute email addresses only
- Password encryption and secure session management
- Admin dashboard featuring:
    - System analytics and health monitoring
    - User management and role assignment interface
    - Platform-wide activity logs and audit trails

- Role-Based Access Control (RBAC) ensuring users only see and access features relevant to their role
- Protection against common web vulnerabilities (SQL injection, XSS, CSRF)

Pillar II: Voice (Grievance Management)

(The Silent Scroll, The Watcher's Eye & Automated Intelligence)

Create a transparent system where campus issues are raised, tracked, and resolved systematically.

Required Features:

Issue Submission Portal:

- Option to submit grievances anonymously or with identity
- Smart categorization system: Infrastructure, Academics, Hostel, Food, Other (customizable)
- Priority tagging: Low, Medium, High, Urgent
- Location tagging (dropdown of campus locations or free text)
- Photo upload capability for visual evidence

- Submission history view for students to track their own grievances

Tracking Dashboard:

- Real-time status updates visible to submitters: Submitted → Under Review → In Progress → Resolved
- Authority remarks and resolution notes attached to each grievance
- Timeline view showing progression of issue resolution
- Filter and search functionality (by category, status, date, priority)

Administrative Interface:

- Ability to assign issues to relevant department authorities
- Status update mechanisms with mandatory remarks
- Resolution documentation and closure workflow
- Dashboard showing pending, in-progress, and resolved issues by department

Bonus Features:

- Automated daily email summaries to department secretaries listing new and pending issues
- Alert triggers for high-priority unresolved issues (e.g., 72+ hours without status change)
- Analytics dashboard showing resolution time patterns, common issue categories, and departmental response rates

Pillar III: Fate (Academic Mastery)

(The Destiny Manager, The Vault of Knowledge & Chronos Calendar)

Centralize academic resources and tracking in one accessible hub.

Required Features:

Course Management:

- Enrollment tracking across semesters (students can view their registered courses)
- Credit distribution calculator (total credits, major/minor/elective breakdown)
- Personal attendance logger for students to self-track class attendance

Resource Repository:

- Searchable database of previous year question papers (organized by course code, year, and exam type)
- Study notes and materials section (student uploadable)
- Tagging system for easy discovery (course name, topic, semester, professor)

Academic Calendar:

- Centralized calendar displaying exam schedules, assignment deadlines, and important academic dates
- Personalized view showing only events relevant to user's enrolled courses
- Reminder notifications (email or in-platform) for upcoming deadlines

Pillar IV: Opportunity (Internships & Tasks)

(The Professor's Call & The Scholar's Ledger)

Connect students with faculty-led research and internship opportunities while helping them organize their academic journey.

Required Features:

Faculty Portal:

- Interface for faculty to post internship and research opportunities
- Required fields: opportunity title, description, required skills, duration, stipend (if any), application deadline
- View and manage student applications (accept, reject, shortlist)
- Direct messaging system with applicants
- Ability to close postings when filled

Student Portal:

- Browse all active opportunities with smart filtering (department, required skills, duration, stipend availability)
- Apply directly through the platform with resume/portfolio upload
- Track application status in real-time (Submitted, Under Review, Shortlisted, Accepted, Rejected)
- Save/bookmark opportunities for later application
- Application history view

The Scholar's Ledger (Personal Task Manager):

- Personal to-do list system for students to track academic goals and tasks
- Project milestone tracking with progress visualization
- Deadline reminders integrated with academic calendar
- Categories/tags for organizing tasks (assignments, projects, personal goals, exam prep)

Bonus Pillars (Optional - Build What Interests You)

These pillars are not mandatory but can significantly enhance your submission. You're also encouraged to add your own creative features beyond these suggestions.

Pillar V: The Commons (Life & Trade)

(The Caravan Pool, Mercenary Guild & Relic Recovery)

The Caravan Pool - Ride Sharing:

- Students can post travel plans (destination, date, time, available seats)
- Match travelers by destination and timing
- Split-cost calculator for shared cab fare
- Contact sharing system with privacy controls

The Mercenary Guild - Freelance Marketplace:

- Student-to-student gig posting (tutoring, design work, coding help, event photography)
- Post requirements and budget
- Skill-based profile system for service providers
- Review and rating system

Relic Recovery - Lost & Found:

- Image-based item listings with description
- Location where item was found/lost and date
- Category filtering (Electronics, Books, ID Cards, Clothing, Other)
- Claim verification system (description matching, admin approval)

Pillar VI: Connection (Community & Safety)

(The Hall of Echoes, Pathfinder's Map & Guardian's Flare)

The Hall of Echoes - Discussion Forum:

- Reddit-style threaded discussion system
- Topic categories (Academics, Campus Life, Events, Tech Support, General)
- Upvote/downvote system for posts and comments
- Moderation tools (flag content, admin removal)
- Search and filter functionality

The Pathfinder's Map - Campus Navigation:

- Interactive map of IIT Mandi campus
- Clickable markers for classrooms, offices, labs, facilities
- Search functionality to find specific locations
- Points of interest (mess halls, libraries, ATMs, medical center)

The Guardian's Flare - Emergency SOS:

- One-tap emergency alert button
- Automatic location sharing (if browser supports geolocation)
- Notification to campus security/designated emergency responders
- Incident logging and follow-up system

Pillar VII: The Spirit (Clubs & Announcements)

(The Guild Halls & Universal Array)

The Guild Halls - Club Management:

- Dedicated pages for each campus club
- Member registration and recruitment forms
- Event posting and management for club-specific activities
- Club announcements and newsletters
- Gallery/portfolio section for club achievements

The Universal Array - Campus Announcements:

- University-wide notification system for important updates
- Category-based filtering (Academic, Events, Administrative, Emergency)
- Email integration to push critical announcements (bonus)
- Push notification support for urgent updates (bonus)
- Archive of past announcements with search

Design & User Experience

Theme Inspiration: Draw from IIT Mandi's natural setting—snow-capped Himalayas, pine forests, mountain streams, and crisp mountain air.

Design Requirements:

- Clean, modern interface with mountain/nature-inspired color palette
- **Day Mode:** Bright whites, sky blues, forest greens
- **Night Mode:** Deep navy, slate grays, warm accents
- Fully responsive design (mobile, tablet, desktop)
- Intuitive navigation with minimal learning curve
- Accessibility considerations (color contrast, readable fonts, keyboard navigation)
- Still you are free to imagine and build no hard and fast restriction

EVALUATION CRITERIA

Criterion	Weight	Description
Architectural Integrity	20%	Code cleanliness, database schema design, security protocols, scalability considerations, and documentation quality
Pillar Completeness	40%	Functionality of implemented pillars (core and bonus). Quality matters more than quantity - exceptional execution of fewer features can outweigh incomplete implementation of all features. However, strong core pillar coverage is highly valued.
The Seeker's Experience	25%	UI/UX quality, intuitiveness, responsiveness, accessibility, and overall smoothness of the user journey across different roles
Oracle's Innovation	15%	Creative solutions, bonus features implemented, thoughtful additions beyond requirements, and technical cleverness

DELIVERABLES

1. GitHub Repository

- Clean, well-documented codebase with proper folder structure
- Comprehensive README with setup instructions
- Database schema documentation
- Contribution guidelines

2. Live Deployment (preferred)

- Hosted platform link (Vercel, Netlify, Railway, Heroku, etc.)
- Test credentials for different user roles (Student, Faculty, Authority, Admin)
- Stable and accessible deployment

3. Demo Video (5-7 minutes)

- Complete walkthrough of all implemented features
- Demonstration of user flows for different roles
- Highlight your best innovations and unique features
- Upload to YouTube or Google Drive with public access

4. Documentation

Your documentation must include:

- Project overview and problem context
- Complete feature list (Core Pillars + Bonus Pillars implemented)
- Technology stack with brief justification
- Setup and installation guide (step-by-step)
- Screenshots or GIFs of key features
- Known limitations and future scope

FINAL WORDS

Technology Freedom: Use any tech stack you're comfortable with—MERN, Django, Flask, Next.js, Laravel, Spring Boot, or anything else. We judge execution and results, not specific frameworks.

Team Size: Teams of 2-4 members are recommended for optimal collaboration. Solo submissions are also welcome if you're up for the challenge.

Real-World Focus: The best solutions will demonstrate deep understanding of actual campus pain points. Talk to students, faculty, and staff. Understand their workflows. Build something they'll actually want to use.

Innovation Encouraged: If you identify problems beyond these seven pillars—solve them! Automated features, smart algorithms, AI integrations, novel UX patterns—we want to be surprised.

Open to Imagination: While the first four pillars are mandatory, feel free to interpret the bonus pillars creatively or add entirely new features that would genuinely improve campus life. The problem statement is a framework, not a cage.

The Institute awaits its digital transformation. The pillars stand ready to be built. The only question remains: Will you be the architect who unites the citadel?

Build AEGIS. Build it well. Build it for IIT Mandi.