**Product Requirements Document (PRD): Innovation Hub**

**1. Executive Summary**

The Innovation Hub is a full-stack platform designed for universities to nurture, manage, and accelerate student innovations. It connects students, college administrators, incubators, and super admins within a single, collaborative ecosystem.

**2. Purpose and Scope**

* Provide a centralized platform for managing idea submissions, endorsements, incubation, and analytics.
* Support multiple user roles with different dashboards and permissions.
* Ensure secure, scalable, and reliable operations for all modules.

**3. Core Product Features**

**3.1 Authentication & Authorization**

* User registration, login, logout with JWT authentication.
* Role-based access: Student, College Admin, Incubator Manager, Super Admin.
* Persistent token refresh and session security.

**3.2 User Profile Management**

* Complete profile with editable fields: Name, Email, Phone, Department, College/Incubator, Year, Roll Number, GPA, Bio, LinkedIn/GitHub/Portfolio, Skills.
* Profile image upload and update.
* Fast & persistent changes, with input validation.

**3.3 Idea Management System**

* Idea submission, including file attachments and team member assignment.
* Idea review and approval/endorsement workflows.
* Idea status transitions: Draft → Submitted → Reviewed → Approved → Funded.
* Commenting, likes, feedback, and team collaboration.

**3.4 Dashboards**

* **Student:** Submit/view ideas, track status, see feedback.
* **College Admin:** Endorse student ideas, manage student list, access analytics.
* **Incubator:** Review & approve ideas, manage startup resources, analytics.
* **Super Admin:** Global platform controls, reporting, user/role management.

**3.5 College & Incubator Management**

* View, add, update, and manage college and incubator details.
* Upload/update institution logos and focus areas.
* Monitor statistics, occupancy, and performance.

**3.6 Notification System**

* In-app notifications with filtering and unread counters.
* Email alerts on critical events: approvals, feedback, new assignments.
* Admin notification preferences.

**3.7 Analytics & Reporting**

* Key platform stats: total users, ideas submitted, approval rates, active incubations.
* Detailed role-based analytics dashboards.
* Download/export analytics reports.

**4. Technical Requirements**

* **Frontend:** React.js, Redux Toolkit, React Router, axios, Tailwind/Material UI.
* **Backend:** Node.js, Express.js, Sequelize ORM, JWT, Multer for uploads.
* **Database:** MySQL or SQLite (for dev/testing); model migration support.
* **Authentication:** JWT, refresh tokens, middleware for protected routes.
* **File Storage:** Local with migration path to cloud (if needed).

**5. Constraints & Assumptions**

* Must be deployable on standard Linux server or cloud service.
* User data and files are securely stored and validated.
* Support for API integrations and unit/end-to-end testing.

**6. Success Metrics**

* 99% successful user registration and login attempts.
* All submitted ideas persist in DB and visible to correct dashboards.
* Profile updates reflect immediately for all users.
* No loss of data on server restart.
* <2s average page load for all users.

**7. Out-of-Scope (MVP)**

* No mobile app in MVP.
* No payment gateway integration (future).
* OAuth/SSO authentication (future).
* Real-time chat (future).