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GRADUATION PROJECT OUTLINE

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Majors: Information Technology

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Project name : Building a System for UTC ResearchHub – "*Project Management System*"

1. **Content and scope of the topic:** The UTC ResearchHub streamlines graduation project management for universities, enabling proposal submission, advisor assignment, outline creation, grading tools, and defense committee management. It ensures transparency, collaboration, and efficiency throughout the project lifecycle.

2. **Technologies, tools and programming languages**

Frontend: Next.js 15, MUI, Tailwind CSS

Backend: Nest.js 10

Database: PostgreSQL

State Management: Zustand, TanStack Query 5

Testing: Jest

Storage & Deployment: Amazon S3 (SW3), Docker

CI/CD: GitHub Actions

3. Main results expected to be achieved

1. A fully functional graduation project management system, including:
 - Role-based access control (students, advisors, department heads, administrators, lecturers).
 - Proposal and approval workflows for projects.
 - Research advisor allocation according to students' preferences and faculty capacity.
 - Tools for project outline creation, upload, and revision tracking.
 - Defense committee creation and management tools.
 - Grading and assessment integration with reporting capabilities.
2. Comprehensive documentation of system design and implementation.
3. Deployment-ready system for pilot use at UTC.

4. Project implementation plan

Sprint	Task Description	Expected time	Notes
1	Define requirements, set up the development environment (Next.js, Nest.js, PostgreSQL), and draft the initial database design. Establish project structure and workflows.	08/01/2025-08/02/2024	Skip authentication and role management for now
2	Implement key features like proposal submission, advisor allocation, and project outline tools. Design the database schema and connect the frontend with the backend. Build a basic UI for user interactions.	09/02/2024-09/03/2025	Skip authentication and role management for now
3	Develop tools for committee management, scheduling, and automated reporting. Finalize grading integration and ensure comprehensive reporting capabilities.	10/03/2025-16/04/2025	Skip authentication and role management for now
4	Implement a robust authentication system for secure login. Configure role-based access control for	17/04/2025-30/04/2025	

	students, advisors, and administrators.		
5	Prepare the system for deployment with Docker and Amazon S3. Finalize CI/CD pipelines with GitHub Actions. Complete system documentation and user guides.	01/05/2025-25/05/2025	

Dean **Department Chair** **Supervising lecturer** **Student performer**
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