

Graduation Project Proposal

Konecta Internship Program – Cycle 3

1. Introduction

As part of the Internship Program Cycle 3, a new adjustment is proposed to enhance the graduation project model. In previous cycles, each track presented its own solution independently. However, to simulate real corporate environments and ensure cross-functional collaboration, we recommend transitioning to a **mega-project model** where all tracks contribute together within integrated teams.

This approach mirrors how organizations deliver projects, bringing together business and technical functions to execute comprehensive initiatives. It will allow interns to experience real-world dynamics, strengthen teamwork, and build an end-to-end understanding of how large-scale projects are developed and delivered.

2. Intern Distribution Overview

- **Total interns enrolled (start of program):** 209
- **Interns who passed Phase 1 benchmark:** 161

By Track (Phase 1 passed):

Track Name	Number of interns
AI & Machine Learning	21
Cloud computing	17
Cybersecurity	18
Data Analytics & Visualization	22
DevOps	16
Digital Marketing	12
Finance	14
Full Stack Development	21
Human Resources	9
Project Management	11
Grand Total	161

3. Team Formation

To simulate corporate structures, interns will be grouped into **6 cross-functional teams**, each composed of representatives from every track. This ensures each team has the necessary blend of technical and business expertise to operate as a **real project team**.

The exact allocation will balance numbers proportionally across all 6 teams. Each team will function as a corporate-like unit capable of handling different components of a mega project.

4. Project Execution Process

Each team will:

1. Be introduced to a **mega commercial project** with defined requirements and success criteria.
 2. Analyze requirements and break down tasks according to their specializations.
 3. Collaborate using project management and agile practices.
 4. Deliver a comprehensive solution that integrates business, technical, and operational perspectives.
 5. Present the final solution to the management panel at the end of the internship.
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5. Graduation Project Concept – ERP for Konecta

For Cycle 3, the graduation project will be the design and development of a tailored Enterprise Resource Planning (ERP) system for Konecta. The ERP will integrate Konecta's core functions—Finance, HR, Operations, Sales, IT, and Analytics—into a unified platform. Each track is assigned minimum acceptable responsibilities aligned with its specialization to ensure every critical aspect of ERP implementation is covered.

Track Responsibilities (Minimum Requirements)

1. Project Management (PM)

- Define and document project methodology (Agile/Hybrid/Waterfall).
- Develop a detailed implementation plan (timeline, milestones, deliverables).
- Prepare budget estimations and allocate resources.

- Identify risks and create a risk management plan.
- Maintain project documentation (charter, WBS, RAID log).

2. Finance & Accounting

- Design ERP financial modules (invoicing, expense tracking, payroll).
- Simulate budget control and cost monitoring through the ERP.
- Propose financing options for ERP implementation.
- Ensure compliance with accounting standards.

3. Human Resources (HR)

- Develop ERP HR module (recruitment, training, performance management, attendance).
- Simulate employee lifecycle workflows.
- Define policies for digital HR processes inside the ERP.
- Prepare adoption and change management strategies for ERP rollout.

4. Artificial Intelligence (AI)

HR Use Cases

- Predictive analytics: employee attrition, training needs (with explainability: SHAP/LIME).
- Generative AI CV parsing & ranking: extract fields, embed job descriptions vs. resumes, provide match reasoning.

Finance Use Cases

- Financial forecasting: revenue, costs, cash flow.
- Compare deep learning (RNN, LSTM, TFT) vs. classical models (ARIMA, SARIMAX, Prophet).
- Ensure backtesting, validation, and interpretable forecasts.

ERP Chatbot (RAG + Generative AI)

- Ingest ERP documents, preprocess & embed into vector store.
- Retrieval + generation pipeline with context retention.
- Guardrails: cite sources, confidence scoring.
- Integrate structured workflows (e.g., leave requests).

Automated Document Processing

- Handle invoices, purchase orders, approvals.
- Approaches: Multi-modal LLMs (LayoutLM, GPT-4V) or cloud OCR services (Azure, AWS).
- Build data pipeline for validation, transformation, and storage.
- Address edge cases: missing fields, low-quality scans, handwriting.

AI-Powered Dashboards

- HR: attrition risk, training gap insights.
- Finance: forecast vs. actuals, budget variances.
- ERP: chatbot query resolution, FAQs.
- Document processing: automation success rate, time saved.

5. Cloud Computing

- Host ERP on scalable cloud infrastructure.
- Set up backup and disaster recovery solutions.
- Implement performance monitoring and cloud cost optimization.
- Ensure ERP availability with multi-region deployment.

6. Cybersecurity

- Define and implement role-based access controls (RBAC).
- Enable authentication mechanisms (MFA, SSO).
- Establish ERP incident response plan.
- Ensure ERP compliance with data protection regulations.

7. Data Analytics & Visualization

HR Analytics

- Dashboards: headcount, attrition, training, promotions, satisfaction.
- Predictive metrics from AI team (attrition probability, training needs).

Finance Analytics

- Dashboards: revenue, expenses, margins, budget vs. actuals, YoY growth.
- Integrate AI forecasts and support scenario analysis.

Operations & ERP Analytics

- Track ERP KPIs: logins, leave requests, approval times, module usage, user satisfaction.
- Chatbot analytics: resolution rate, fallback queries, time saved.

Real-Time Analytics

- Enable near real-time dashboards via direct system connections or streaming (Kafka, Kinesis, Event Hubs).
- Optimize for low-latency performance.
- Alerts: attrition spikes, budget overruns, ERP errors.

Collaboration with AI Team

- Embed AI insights into dashboards (HR, Finance, ERP, Documents).
- Add explainability (factors behind forecasts/predictions).
- Ensure stakeholder trust in predictive outputs.

8. DevOps

- Build CI/CD pipelines for ERP updates.
- Automate deployment and testing environments.
- Maintain version control for ERP modules.
- Ensure smooth system integration and deployment cycles.

9. Full Stack Development

Architecture

- Microservices-based architecture using Java Spring Boot + ASP.NET Core.
- API Gateway: Spring Cloud Gateway or Ocelot.
- Service Discovery: Eureka or Consul.
- Configuration Management: Spring Cloud Config Server.
- Resilience: Circuit breaker pattern (Resilience4j for Java, Polly for .NET).

Frontend

- Framework: Angular with PrimeNG/Material UI.
- Authentication: JWT-based with interceptors for API calls.
- Modularity: Lazy loading per ERP domain (HR, Finance, Inventory, etc.).

Backend Services

- Authentication Service:
 - JWT-based security.
 - Role-based access control.
 - Optional OIDC integration via Keycloak.
- User & Role Management Service.
- Finance Service.
- Inventory Service.
- HR & Payroll Service.
- Reporting Service:
 - Export functionality (PDF, Excel).
 - Dashboard generation.

10. Digital Marketing (DM)

- Design ERP launch communication strategy.
 - Create user adoption campaigns (internal newsletters, awareness drives).
 - Produce training videos, onboarding manuals, and digital guides.
 - Develop ERP branding (name, visuals, positioning) to drive adoption.
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6. Execution Plan

The project will run over a 5-week period. Each week has structured activities for all tracks, ensuring continuous progress even when dependencies exist. This approach avoids idle time and promotes parallel execution.

Week 1 – Initiation & Foundation

- **Project Management (PM):** Finalize and share the project charter, methodology, WBS, risk plan, and timeline. Begin maintaining RAID logs and align teams during stand-ups.
 - **Finance & Accounting:** Start designing workflows for invoicing, payroll, and budgeting; document ERP financial requirements. Conduct benchmarking with existing ERP systems.
 - **Human Resources (HR):** Map employee lifecycle workflows (recruitment, training, performance, attendance). Draft policies for digital HR integration.
 - **AI & ML:** Collect datasets (CVs, finance data samples, HR attrition datasets). Begin defining use cases and data pipelines needed for later models.
 - **Cloud Computing:** Prepare cloud environment baselines, define hosting strategy, and start evaluating backup/disaster recovery solutions.
 - **Cybersecurity:** Draft ERP security requirements and role-based access guidelines; prepare compliance checklist.
 - **Data Analytics & Visualization:** Define dashboard requirements in line with HR and Finance workflows. Begin mock-up designs for HR and Finance dashboards.
 - **DevOps:** Set up version control repositories and initial CI/CD skeleton pipelines. Coordinate with Full Stack on integration approach.
 - **Full Stack Development:** Define ERP system architecture (microservices-based). Develop initial backend service stubs and frontend skeleton.
 - **Digital Marketing (DM):** Conduct stakeholder interviews to understand ERP branding needs. Start drafting ERP awareness campaign strategy.
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Week 2 – Architecture & Infrastructure

- **PM:** Refine milestones, dependencies, and update risks. Lead daily progress tracking with teams.
- **Finance & Accounting:** Prototype ERP financial workflows in documentation; prepare sample budget monitoring dashboards in Excel for later integration.
- **HR:** Finalize digital HR workflows and define data structures for employee profiles and training modules.
- **AI & ML:** Prepare data preprocessing scripts for HR and Finance datasets. Start exploring predictive model candidates (attrition models, forecasting models).
- **Cloud Computing:** Deploy cloud hosting infrastructure, set up monitoring dashboards, and initiate cost optimization measures.
- **Cybersecurity:** Collaborate with Cloud team to draft initial access control policies and MFA/SSO integration plan.
- **Data Analytics & Visualization:** Build initial data models for HR and Finance dashboards. Begin experimenting with integrating mock AI outputs (from Week 1).
- **DevOps:** Establish automated test pipelines; configure environments for staging vs. production.

- **Full Stack Development:** Develop core backend services (authentication, user management). Enhance frontend skeleton with role-based UI placeholders.
 - **Digital Marketing:** Start designing ERP branding identity (logos, taglines). Draft initial adoption communication plan for internal users.
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Week 3 – Security, Integration & Early Intelligence

- **PM:** Lead cross-team stand-ups, track blockers, update RAID log. Validate that dependencies are being managed across technical teams.
 - **Finance & Accounting:** Refine workflows and align with Full Stack to ensure ERP integration. Draft test cases for financial compliance.
 - **HR:** Document training and performance management processes in ERP-ready format. Begin drafting employee adoption policies.
 - **AI & ML:** Start building attrition prediction models; create baseline forecasting models (Prophet/ARIMA). Begin chatbot design framework.
 - **Cloud Computing:** Finalize multi-region deployment setup and disaster recovery policies. Work with DevOps on environment readiness.
 - **Cybersecurity:** Implement RBAC structures within ERP mock setup; run penetration test simulations. Draft ERP incident response plan.
 - **Data Analytics & Visualization:** Develop first working dashboards (HR attrition, payroll costs). Prepare pipeline integrations with AI team outputs.
 - **DevOps:** Integrate security and cloud requirements into pipelines. Automate test runs for new modules.
 - **Full Stack Development:** Expand backend services (finance, HR modules). Create working login/authentication with JWT. Provide APIs for dashboards.
 - **Digital Marketing:** Start drafting user training scripts and onboarding video outlines. Work with HR on change management planning.
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Week 4 – Intelligence & Visualization

- **PM:** Ensure all deliverables are on track for consolidation. Facilitate cross-functional workshops to validate integration.
- **Finance & Accounting:** Simulate ERP financial processes (budget control, payroll). Test integration with backend services.
- **HR:** Validate HR workflows within ERP prototype. Create HR adoption guides and test with mock employee data.
- **AI & ML:** Deploy first versions of predictive models. Begin chatbot integration with ERP system. Develop document processing prototypes.
- **Cloud Computing:** Optimize ERP hosting for performance monitoring and scale. Assist DevOps in continuous deployment.

- **Cybersecurity:** Validate security setup with user testing. Ensure ERP meets compliance standards.
 - **Data Analytics & Visualization:** Build near-final dashboards for Finance, HR, and ERP KPIs. Enable alerts for anomalies (attrition spikes, budget overruns).
 - **DevOps:** Finalize CI/CD pipeline with deployment automation. Support AI and Full Stack deployments.
 - **Full Stack Development:** Complete backend services (inventory, payroll). Develop reporting service for exports. Expand frontend with HR and Finance modules.
 - **Digital Marketing:** Launch pre-rollout campaign (awareness emails, teasers). Prepare training video recordings and user guides.
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Week 5 – Adoption, Training & Final Delivery

- **PM:** Consolidate all documentation, RAID logs, final WBS, and project closure report. Lead final rehearsals for the management presentation.
- **Finance & Accounting:** Support testing of financial workflows in ERP. Validate accuracy of dashboards and reporting.
- **HR:** Finalize ERP HR module. Conduct user adoption simulations with training scenarios.
- **AI & ML:** Deploy final models (attrition, forecasting). Complete chatbot integration. Provide model explainability (SHAP/LIME).
- **Cloud Computing:** Ensure full system stability and monitoring in place. Finalize backup and disaster recovery tests.
- **Cybersecurity:** Validate security readiness with simulated incidents. Confirm compliance documentation.
- **Data Analytics & Visualization:** Deliver final dashboards with integrated AI insights. Ensure visual clarity and stakeholder usability.
- **DevOps:** Run final deployment and validate smooth integration across all modules. Support final bug fixes.
- **Full Stack Development:** Deliver final integrated ERP prototype with working services and UI. Package system for demonstration.
- **Digital Marketing:** Roll out ERP launch campaign, onboarding manuals, and final training sessions. Support live demo branding during presentation.

7. Evaluation Criteria

The project will be graded on a 100-point scale, distributed across 10 tailored categories:

Criteria	Weight (10 pts each)	Description
Understanding of ERP Requirements	10	How well the team captures and interprets Konecta's ERP needs.

Project Planning & Methodology	10	Quality of planning, methodology selection, and execution framework.
Functional Module Development	10	Effectiveness of each track's ERP module (Finance, HR, etc.).
Technical Integration	10	Success in connecting modules (APIs, cloud deployment, DevOps).
Security & Compliance	10	Robustness of cybersecurity and data protection in the ERP.
Innovation & AI Utilization	10	Use of AI and creative approaches to enhance ERP functionality.
Collaboration & Teamwork	10	Cross-functional collaboration and role clarity.
Documentation & Reporting	10	Professionalism and completeness of project documentation.
User Adoption & Communication	10	Quality of DM campaigns, onboarding materials, and usability.
Final Delivery & Impact	10	Overall ERP solution quality, presentation, and business impact.

8. Expected Outcomes

- A working ERP prototype covering core business functions.
- Stronger exposure to enterprise-grade project execution.
- Balanced teamwork simulating corporate structures.
- Measurable performance aligned with management expectations.
- Enhanced employability of interns through hands-on ERP experience

9. Important Notes

Project Management Stand-Ups

- Frequency: 3 times per week (Sunday, Tuesday, Thursday).
- Duration: 30 minutes.

- **Focus:** progress, blockers, cross-track dependencies.
- **Escalation:** PM leads raise risks directly in stand-ups.