COMP 019 - Applications Development and Emerging Technologies

Project Development Phase

SESSION 15: PROJECT SPRINT 3 - INTEGRATION & TESTING

ACTIVITY 15.1: A2A INTEGRATION (OPTIONAL ADVANCED)

Topic: Adding agent-to-agent capabilities

Description: Integrate A2A protocol for advanced AI features

INSTRUCTIONS:

If implementing A2A:
• Create A2A server with agent skills
• Define Agent Card with capabilities
• Implement task handling
• Connect to your MCP tools

If not implementing A2A:
• Focus on enhancing MCP implementation
• Add more sophisticated tools
• Implement tool chaining
• Add conversation context handling

Advanced AI features:
• Multi-step reasoning
• Context-aware responses
• Personalized recommendations
• Predictive features (if applicable)

Integration testing:
• All AI features working together
• End-to-end user flows

Deliverables: Submit A2A implementation OR enhanced MCP features	30 Points

ACTIVITY 15.2: CLOUD DEPLOYMENT

Topic: Deploying complete system to production

Description: Deploy your AI-powered application to the cloud

INSTRUCTIONS:

Prepare for deployment:
• Production settings configured
• Environment variables set
• Static files ready
• Requirements.txt complete

Deploy to cloud platform:

• Deploy Django + Pgvector

• Verify database migrations

• Test all API endpoints

• Verify MCP server accessible

Deploy frontend:

• If web: Deploy static files or separate hosting

• If mobile: Create APK or document setup

Post-deployment verification:

• All features working in production

• AI features functioning

• Performance acceptable

• No security issues

Deliverables: Submit deployed URLs and verification checklist	**35 Points**

ACTIVITY 15.3: TESTING AND DOCUMENTATION

Topic: Comprehensive testing and documentation

Description: Test thoroughly and create complete documentation

INSTRUCTIONS:

Comprehensive testing:

• Functional testing (all features)

• API testing (all endpoints)

• AI feature testing (accuracy, relevance)

• User acceptance testing

• Edge cases and error handling

Create documentation:

Technical documentation:

• System architecture

• Database schema

• API documentation

• MCP tools documentation

• Deployment guide

User documentation:

• User manual

• Feature guide

• AI feature usage

Prepare presentation:

• Create slides

• Plan live demo

Milestone: 75% complete

Deliverables: Submit test results and documentation (75% completion)	**40 Points**

	TOTAL POINTS: 105