Five-Level Applied AI Learning Pathway

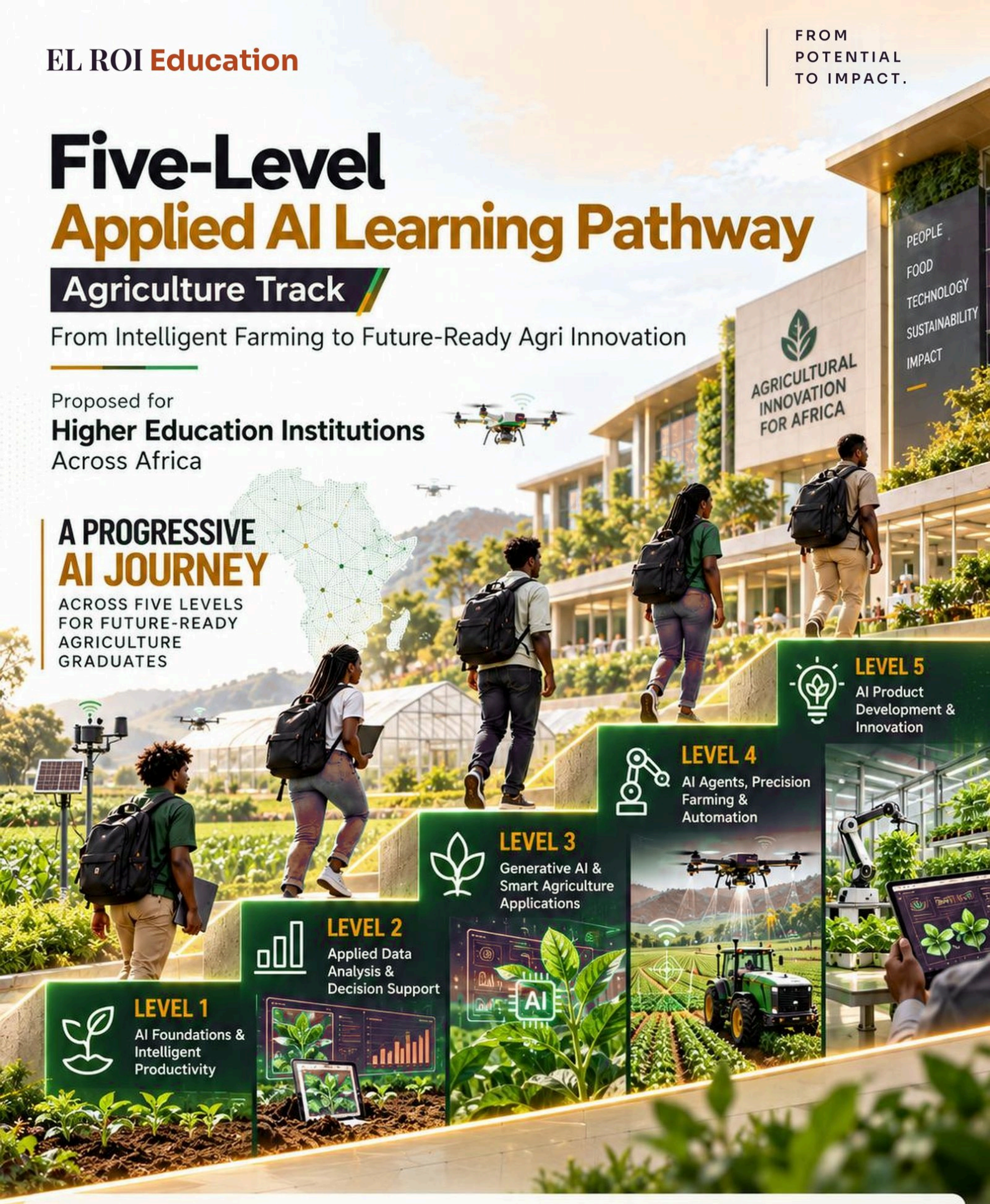
Agriculture Track

From Intelligent Farming to Future-Ready Agri Innovation

Proposed for
Higher Education Institutions
Across Africa

A PROGRESSIVE AI JOURNEY

ACROSS FIVE LEVELS FOR FUTURE-READY AGRICULTURE GRADUATES



75 Hours per Level
30 Hours Theory + 45 Hours Hands-on

Flexible Delivery

Real-World Projects

Industry-Oriented Certification Readiness

Productivity AI Tools in Every Level

El Roi Nexus AI Platform



Executive Summary & Program Objectives

Agriculture Track

Empowering Future-Ready Agriculture Students Through a Structured AI Learning Journey

Executive Summary

This **five-level** applied AI learning pathway equips students from agriculture, agronomy, crop science, soil science, horticulture, agricultural engineering, agribusiness, food systems and related disciplines with progressive AI skills, from AI literacy and productivity to agricultural data analysis, generative AI, precision farming, intelligent automation and AI product innovation. Each level is 75 hours (30 hours theory + 45 hours hands-on), designed for higher education institutions across Africa and supported by El Roi Nexus AI with guided content.

Target Audience

AGRICULTURE DISCIPLINES FOR AN AI-ENABLED TOMORROW

- Agriculture
- Agronomy
- Crop Science
- Soil Science
- Horticulture
- Agricultural Engineering
- Agri Business
- Food / Related Agriculture Programs

Program Objectives

FROM AI LEARNING TO REAL AGRICULTURE IMPACT

1. Build AI literacy and digital productivity for agriculture students.
2. Develop agricultural data analysis and decision-support capability.
3. Enable domain-specific AI applications for crop, soil, farm and agribusiness workflows.
4. Prepare students for automation, precision agriculture and intelligent farm operations.
5. Strengthen portfolio, certification awareness and career readiness for the evolving agriculture ecosystem.

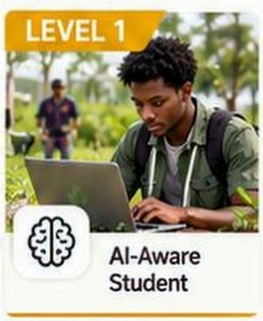
Key Highlights

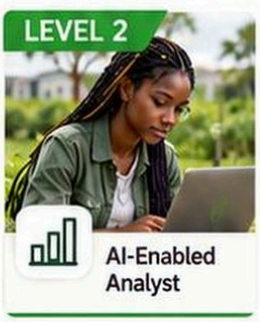
A COMPREHENSIVE, PRACTICAL AND INDUSTRY-RELEVANT LEARNING EXPERIENCE

- **5** Progressive Levels
- **375** Total Learning Hours
- **150** Hours Theory
- **225** Hours Hands-on
- **Productivity AI Tools** Embedded
- **Real-World Agriculture Use Cases**

Student Transformation Journey

PROGRESSIVE SKILLS. REAL CAPABILITIES. BRIGHTER FUTURES.











Program Architecture & Five-Level Roadmap

From Intelligent Farming to Future-Ready Agri Innovation

A structured, progressive learning pathway designed for agriculture students to develop in-demand AI skills, apply them to real-world agricultural challenges, and become future-ready graduates.



Academic Structure per Level

30 Hours Theory per Level
+ 45 Hours Hands-on per Level

75 Hours Total per Level

Total Program Engagement

375 Total Learning Hours Across Five Levels
(75 Hours × 5 Levels)

Flexible Delivery Options

- Semester-integrated delivery
- Modular bootcamps
- Blended faculty-supported format

Program Summary — Level-Wise Focus

LEVEL 1
AI Foundations & Intelligent Productivity

- AI basics and key concepts
- Prompting techniques
- Productivity tools
- Agriculture use cases

LEVEL 2
Applied Data Analysis & Decision Support

- Data analysis fundamentals
- Visualisation and dashboards
- Farm insights from data
- AI-supported decision making

LEVEL 3
Generative AI & Smart Agriculture Applications

- GenAI concepts and tools
- RAG basics
- Document intelligence
- Crop, soil and farm use cases

LEVEL 4
AI Agents, Precision Farming & Automation

- AI agents and automation
- Farm workflow integration
- Sensor-driven operations
- Process improvement and optimisation

LEVEL 5
AI Product Development & Innovation

- AI product lifecycle
- Prototyping and validation
- Deployment and scaling
- Capstone innovation project

Key Highlights

- Productivity AI Tools
- Real-World Mini-Projects
- Portfolio-Ready Outcomes
- Faculty Enablement Compatible
- El Roi Nexus AI Platform Support

Detailed Curriculum — Levels 1 & 2

From AI Literacy to Data-Driven Agricultural Decisions



LEVEL 1

AI Foundations & Intelligent Productivity

Build strong AI foundations and use AI tools for smarter academic and personal productivity.

Industry Skills Covered

- What is AI and how it works
- Types of AI and agriculture examples
- Prompt engineering basics
- AI productivity tools
- Research assistance
- Document drafting
- Presentations
- Spreadsheet support
- Responsible AI and ethics

Hands-on Use Cases

- Summarize agricultural research articles and field notes
- Create study notes and flashcards
- Prepare presentations and lab reports
- AI-powered communication and email drafting
- Research and interview preparation



Outcome

Learners confidently use AI tools for learning, communication and productivity.

LEVEL 2

Applied Data Analysis & Decision Support

Develop data skills and apply AI to analyze information and generate agricultural insights.

Industry Skills Covered

- Data basics and data types
- Working with datasets
- Data analysis with Python or no-code tools
- Visualization and storytelling
- AI for agriculture, production and climate analysis
- Intro to dashboards and reporting
- Document intelligence
- AI for research and decision support

Hands-on Use Cases

- Analyse crop yield, rainfall or soil datasets
- Generate insights from farm or survey data
- Create interactive dashboards
- Research and compare agriculture information
- Automate technical reporting



Outcome

Learners work with real-world data, create visualizations and use AI to support academic and agricultural decisions.

75 Hours per Level
30 Hours Theory + 45 Hours Hands-on

Flexible Delivery

Real-World Projects

Industry-Oriented Certification Readiness

Productivity Ai Tools in Every Level

El Roi Nexus AI Platform

Detailed Curriculum — Levels 3 & 4

From Smart Agriculture to Precision Farming & Intelligent Automation

LEVEL 3 — Generative AI & Smart Agriculture Applications

Apply generative AI to solve real problems in agriculture, crop science, farm operations and agribusiness.

Industry Skills Covered

- Large language models and applications
- Advanced prompting techniques
- AI content generation
- Document intelligence and knowledge assistants
- AI for crop, soil, irrigation, livestock and agribusiness workflows
- Introduction to RAG basics
- Domain workflows and use cases
- Introduction to multimodal AI

Hands-on Use Cases

- Build an agriculture knowledge assistant
- Analyse and summarize extension documents or research reports
- Create farm advisory or domain-specific content
- Generate policy briefs and management summaries
- Design simple infographics and insight summaries

Outcome

Learners build useful domain-focused AI applications using GenAI and RAG basics.



LEVEL 4 — AI Agents, Precision Farming & Automation

Build AI agents and workflow automations to improve farm productivity and solve complex agricultural problems.

Industry Skills Covered

- AI agents and tool calling
- Multi-step agent workflows
- Automation with no-code and low-code tools
- Integrations with common applications
- Human-in-the-loop workflows
- AI for operations, advisory and agribusiness support
- Security, governance and responsible AI

Hands-on Use Cases

- Automate farm reporting workflows
- Build an AI crop advisory assistant
- Create automated forms and agronomy workflows
- AI for irrigation, inventory and operations tasks
- Multi-step assistants for domain problems

Outcome

Learners design and build agents that automate repetitive work and improve efficiency.



Flexible Delivery | Faculty-Supported Adoption | Industry-Oriented Learning | Portfolio Development | El Roi Nexus AI Platform Access

Detailed Curriculum — Level 5 & Capstone Studio

Advanced Applied AI, Innovation & Real-World Impact



LEVEL 5

AI Product Development & Innovation

Apply end-to-end AI product development skills to create impactful solutions for agriculture, food systems and rural innovation use cases.

Industry Skills Covered

- AI product design and user-centric thinking
- Problem framing and domain discovery
- Rapid prototyping and MVP development
- Integrating AI models and APIs
- Low-code or no-code solution building
- Solution testing and iteration
- Deployment fundamentals
- Measuring impact and ROI
- Future trends in AI and agriculture career pathways

Hands-on Use Cases

- Build a mini AI-powered agriculture application
- Create a research or agribusiness MVP
- Develop a crop, irrigation, post-harvest or supply-chain use-case solution
- Solve a local agriculture challenge through AI
- Present a showcase-ready prototype

Learner Outcome

Learners design, build, test and present an end-to-end applied AI product or innovation concept.



Integrated Capstone Studio



Capstone Components

- Problem selection
- Solution scoping and planning
- Data/content setup
- Workflow design and implementation
- Testing and iteration
- Demo day presentation



Platform & Tool Exposure

- El Roi Nexus AI platform
- Prompt tools and AI assistants
- Dashboards and analytics tools
- No-code/low-code tools
- APIs and integrations
- Collaboration and project management tools



Final Deliverables

- Working prototype
- Presentation deck with impact analysis
- Documentation
- Portfolio artifact

75 Hours for Level 5
30 Hours Theory +
45 Hours Hands-on

Project-Based Learning

Industry-Oriented Certification

El Roi Nexus AI Platform

PEOPLE
IDEAS
TECHNOLOGY
IMPACT

FROM POTENTIAL TO IMPACT.

Delivery Model & Learning Experience

Flexible. Practical. Future-Ready.

A blended, hands-on learning experience designed for agriculture graduates to build real AI skills, work on practical projects and gain career-ready competencies for the evolving agriculture and agri-tech ecosystem.



1. DELIVERY OPTIONS

Immersive Modular Delivery



- 5 to 6 day intensive blocks
- Guided practice and mini-projects
- On-campus delivery
- Faculty supported

Embedded Academic Delivery



- Weekly or periodic sessions integrated into the academic calendar
- Blended delivery
- Continuous lab practice
- Platform enabled

2. LEARNING METHODOLOGY

01	02	03	04	05
Learn	**Experiment**	**Build**	**Apply**	**Demonstrate**
Learn concepts, tools and best practices	Experiment in hands-on labs with guided notebooks	Build mini-projects	Apply to real agriculture use cases and industry problems	Demonstrate solutions and build a portfolio

3. HANDS-ON COMPONENTS

- Coding & No-Code Labs
- Guided Notebooks
- Prompt Labs
- Mini-Projects
- Assignments
- Capstone Development
- Faculty Mentoring
- Platform Access

4. PROGRAM DELIVERY HIGHLIGHTS

- 75 Hours per Level
- 30 Hours Theory
- 45 Hours Hands-on
- Real-World Use Cases Across Disciplines
- Project-Based Progression

Projects, Assessment & Certification Readiness

Learn | Build | Showcase | Get Certified | Be Career Ready

From Hands-On Projects to Industry-Ready Agriculture Innovators

REAL AGRICULTURE PROJECTS
REAL OPPORTUNITIES ACROSS AFRICA



Project Progression Roadmap

A hands-on journey from simple tasks to real-world agriculture innovation.

LEVEL 1
AI Productivity Mini Project

Use AI tools to solve a simple agriculture task and improve productivity.

LEVEL 2
Data Analysis & Insight Mini Project

Analyse real farm, crop, soil or climate data and extract meaningful insights.

LEVEL 3
Smart Agriculture / Knowledge Assistant Project

Build a domain-focused prototype using GenAI, documents or sensors for agriculture.

LEVEL 4
Automation / Precision Farming Project

Design and build an automated workflow or agent-supported system for agriculture operations.

LEVEL 5
Capstone AI Product or Innovation Demo

Develop a complete solution addressing a real-world agriculture problem and showcase it.

Assessment Framework

Continuous assessment to track your learning and project progress.

20%	20%	25%	25%	10%
Participation & Attendance	Quizzes	Guided Labs	Mini-Projects	Final Project / Demo

Certification Readiness

Build in-demand skills and prepare for industry-recognised certifications.

Foundation Stage

- AI awareness and ecosystem understanding
- Prompt engineering fundamentals
- Data literacy for agriculture applications
- Responsible AI basics

Advanced Stage

- AI application development for agriculture use cases
- GenAI and RAG systems
- Agentic systems awareness
- Analytics and workflow automation

Key Outcomes for You

Gain practical skills, real experience and a stronger foundation for your agriculture career.

Portfolio-ready artifacts
Projects, code, reports and demos to showcase your skills.

Stronger AI productivity
Work smarter with AI tools and automation in agriculture tasks.

Real project exposure
Hands-on experience with industry-relevant use cases and hardware.

Improved employability
Be job-ready with in-demand skills, certifications and a strong portfolio.

75 Hours per Level
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Productivity AI Tools in Every Level

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Commercial Model, Roles & Institutional Impact

A Flexible Pathway for Scalable AI Enablement in Higher Education

Agriculture Track

1 Commercial Model

FLEXIBLE. TRANSPARENT. SCALABLE.

Per-Student Pricing
Transparent, affordable pricing per student.

Per-Level Engagement
Pricing options based on individual or multi-level engagement.

Bundled Programs
Cost-effective bundles across multiple levels.

Annual Platform Access Options
Institution-wide or cohort-based platform plans.

Faculty Enablement Add-ons
Optional training, certification and support for faculty and academic staff.

Custom Implementation Support
Onboarding, integration and program design support.

Final commercials depend on cohort size, program scope, delivery model and any customization or integration requirements.

2 Roles & Responsibilities

COLLABORATIVE PARTNERSHIP FOR GREATER IMPACT

El Roi Education Responsibilities

- Provide platform access and technical infrastructure.
- Design and curate content and curriculum.
- Develop guided learning assets.
- Provide assessment templates and rubrics.
- Share real-world project frameworks.
- Support faculty onboarding and enablement.
- Provide progress reporting and learning analytics.



Institution / Partner Responsibilities

- Student enrolment and cohort management.
- Classroom/lab/infrastructure coordination.
- Faculty facilitation and student support.
- Academic scheduling and calendar alignment.
- Local mentoring and project guidance.
- Attendance and participation tracking.
- Approvals and governance support.



3 Institutional Impact

MEASURABLE OUTCOMES FOR A BRIGHTER AGRICULTURE FUTURE

AI-Enabled Student Learning



Stronger Project Portfolios



Faculty-Supported Adoption



Internship & Innovation Readiness



Improved Employability



Scalable AI Adoption



Agriculture AI Readiness Outcomes

Students progress from AI literacy to real-world agriculture AI application, automation and innovation, ready for modern workplaces and advanced study.

75 Hours per Level
30 Hours Theory + 45 Hours Hands-on

Flexible Delivery

Real-World Projects

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Productivity AI Tools in Every Level

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