Artificial Intelligence (AI) – Foundations

AI Fundamentals, Python, Data & Responsible AI

Target Audience

High School Students (Grades 9–12) and Beginners with little or no prior experience in Artificial Intelligence, Python, or Data Science.

Program Pathway

Foundation

Total Duration

72 Hours

Delivery

Cohort-Based + Instructor-Led + Hands-On Labs

Program Goal

This beginner-friendly program introduces students to the fundamentals of Artificial Intelligence through simple explanations, Python programming, data concepts, responsible AI, and hands-on projects.

Program Structure

Module	Topic	Hours
Module 1	Introduction to Artificial Intelligence	12
Module 2	Python Programming for AI	18
Module 3	Data Fundamentals for AI	14
Module 4	AI Ethics & Responsible AI	10
Module 5	AI Foundation Project	18
Total		**72 Hours**

Curriculum

Module 1 – Introduction to Artificial Intelligence

Students learn what AI is, how AI systems work, different types of AI, real-world applications, machine learning fundamentals, and an introduction to Generative AI.

Topics: Understanding AI • AI & ML Fundamentals • Types of AI • AI Applications • How AI Systems Work • Introduction to Generative AI

Module 2 – Python Programming for AI

Students develop essential Python programming skills needed for working with AI and data.

Topics: Python Basics • Variables & Data Types • Input & Output • Operators • Conditions • Loops • Lists & Dictionaries • Functions • Python Libraries • Python for AI

Module 3 – Data Fundamentals for AI

Students learn how AI uses data and how to work with basic datasets.

Topics: Understanding Data • Data Types • Structured & Unstructured Data • Datasets • Data Collection • Data Cleaning • Basic Data Analysis • Data Visualization

Module 4 – AI Ethics & Responsible AI

Students understand how AI should be designed and used responsibly.

Topics: AI Ethics • Bias & Fairness • Privacy • Responsible AI • AI Safety • Reliability • Generative AI Limitations • Real-World Case Studies

Module 5 – AI Foundation Project

Students apply what they learned to develop a beginner-level AI solution addressing a real-world problem.

Topics: Project Ideation • Problem Definition • Data & Solution Planning • Python-Based Development • Testing & Evaluation • Responsible AI Review • Documentation • Final Presentation

Final Project: Build and present a beginner-friendly AI solution.

Hands-On Learning

Students learn through **instructor-led lessons, guided coding exercises, practical labs, mini-projects, assessments, and a final AI project**.

What Students Build

- Python programming skills
- Data analysis fundamentals
- Understanding of AI and machine learning
- Responsible AI awareness
- A beginner-level AI project
- A foundation for the **AI Practitioner** pathway

Recommended Lab Requirements

Each student should ideally have:

- **Windows / MAC Laptop or desktop computer**
- 4 GB RAM minimum; **8 GB RAM recommended**
- At least 5–10 GB of free storage

Next Step

After successfully completing **AI Foundations**, students can progress to **AI Practitioner**, where they begin exploring Machine Learning, Data Science, Computer Vision, AI Model Development, and Applied AI projects.