firefly coders

Path to AI: Curriculum

Level	Objective	Topics Covered	Projects
Foundations	Build strong foundational skills in Python programming through small, structured projects.	Variables, Input, and Data Types Loops Conditional Statements Functions and Lists File Manipulation Code Analysis and Debugging	~20
Game Development	Reinforce foundational Python concepts while introducing game development.	Infinite Loops Reserved Functions Conditional Statements II Event Handling: Movement, Collision, etc. Game Library Basics and Usage	15-20
Game Development II / Intermediate Python I	Introduce object-oriented programming (OOP), and lay the groundwork for advanced concepts.	Basic Classes and Objects Functions with Parameters Advanced Game Architecture Advanced Game Logic and Library Usage	~10
Intermediate Python II	Deepen understanding of OOP by building more advanced games, showcasing how OOP simplifies complex coding tasks.	Object-Oriented Programming Exception Handling Basic Recursion	~10
JSON Fundamentals	Introduce students to JSON to build a strong foundation for working with APIs effectively.	JSON Structure Parsing and Writing JSON Reading API Outputs Mini-Projects on JSON Integration	5-10
Full Stack Development: Flask and Python	Build both front-end and back-end systems using Python, starting with static websites and progressing to dynamic APIs.	Flask Basics HTML/CSS for Front-End (UI) Back-End Logic Connecting UI to Back-End Requests and Responses JSON Integration and Data Display	5-10
Introduction to AI Concepts	The core components of AI, including Machine Learning, Computer Vision, LLM's, etc..	What is AI Key AI Technologies (ML, Vision, NLP, etc.) Applications of AI Ethics of AI	~5
AI and Machine Learning APIs	Learn and use essential AI tools and libraries.	Pandas and NumPy Scikit-learn Visualizing Data Preparing Data for AI Introductory ML Models	10+
AI and ML Projects	Build larger, more resilient and intelligent Machine Learning and AI driven projects.	AI Projects (e.g. Chatbots, Sentiment Analysis, Prediction Models, etc.)	~5
Total Projects			**~100**