

Course Syllabus: Lab 15 – AI Architect vs. The Machine

Provider: Gemini Forensic Academy

Course Code: GFA-LAB15

Classification: Advanced Computer Science, Logic, & Technological Literacy (High School / Middle School Enrichment)

Instructional Delivery: Self-Paced Digital Modules with Applied Practicums

Course Fee: \$395

Course Description

This course provides an intensive academic framework that transforms students from passive consumers of artificial intelligence into logical directors of technology. Moving beyond superficial application use, students are trained in computational thinking, structural logic, and forensic verification. By treating AI as a complex data partner, students develop critical thinking frameworks to identify algorithmic bias, analyze multi-layered data structures, and ethically audit machine learning outputs.

State-Specific Standards Alignment Matrix

To satisfy state-level audits, this curriculum aligns directly with the following mandated state academic and technology standards:

State	Regulatory Authority & Account Type	Primary Standards Alignment	Audit Keywords Targeted
Texas	Texas Education Agency (TEA)	TEKS Technology Applications:	Computational Thinking, Data Analysis,

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	Texas ESA / ClassWallet	§126.16 (Computational Thinking) §126.41 (Digital Citizenship & Data Literacy)	Algorithmic Logic, Problem Decomposition
Arizona	Arizona Department of Education AZ ESA	Arizona Computer Science Standards: Essential Concepts: Computing Systems, Data & Analysis, Impacts of Computing (Grades 9-12)	Technological Literacy, Bias Identification, Logical Frameworks, Systematic Evaluation
West Virginia	West Virginia State Treasurer Hope Scholarship	WV College- and Career-Readiness Standards: Standard M.9-12.Logic (Mathematical & Logical Reasoning)	Academic Enrichment, Strategic Planning, Logic and Reasoning, Data Verification

State	Regulatory Authority & Account Type	Primary Standards Alignment	Audit Keywords Targeted
		Technology Integration Standards	
Arkansas	Arkansas Department of Education Education Freedom Account (EFA)	Arkansas Computer Science & Digital Technology Standards: Core Concepts: Data, Critical Thinking, and Problem Solving	Direct Academic Instruction, Algorithmic Analysis, Digital Literacy, Ethical Technology

Instructional Units & Objectives

Unit 1: The Architecture of Artificial Intelligence & Logical Frameworks

- **Objective:** Students will master problem decomposition by breaking complex prompts into multi-layered programmatic instructions.
- **Auditable Concepts Covered:** Input/output systems, natural language processing frameworks, and structural logic.
- **State Standard Target:** TEKS §126.16 (Algorithmic Logic); AZ CS Standards (Computing Systems).

Unit 2: Algorithmic Logic & Computational Thinking

- **Objective:** Students will apply the "Architect's Mindset" to map out data flows, step-by-step problem-solving structures, and procedural parameters.

- **Auditable Concepts Covered:** Conditional logic, computational efficiency, and systematic workflow mapping.
- **State Standard Target:** Arkansas CS Standard (Problem Solving); WV Standard M.9-12.Logic.

Unit 3: Forensic Verification, Fact-Checking, & Data Auditing

- **Objective:** Students will act as forensic data auditors, cross-examining machine outputs to detect "hallucinations" (errors), source integrity failures, and logic gaps.
- **Auditable Concepts Covered:** Source validation, data verification protocols, and critical evaluation of digital media.
- **State Standard Target:** TEKS §126.41 (Data Literacy); AZ CS Standards (Data & Analysis).

Unit 4: Metacognition, Bias Identification, & Digital Ethics

- **Objective:** Students will evaluate how data training sets form algorithmic baselines, learning how to recognize systemic, cognitive, and adultification biases in machine training models.
- **Auditable Concepts Covered:** Technology ethics, algorithmic bias, societal impacts of computing, and objective data analysis.
- **State Standard Target:** AZ CS Standards (Impacts of Computing); Arkansas Digital Tech Standards (Critical Thinking).

Course Deliverables & Assessment Criteria

To maintain verified academic progress for state portfolio reviews, students must complete and submit the following artifacts:

1. **The Structural Prompt Blueprint:** A graded project requiring the student to document a multi-tiered logical instruction chain.
2. **The Forensic Audit Report:** A written analysis where the student independently fact-checks, verifies, and corrects an flawed AI data output.

3. **Algorithmic Capstone System:** A final practical workflow showing how the student leverages technology ethically for independent academic execution.

 Note for State ESA Auditors

This course is classified as a **Core Academic/Technological Enrichment Course** and is strictly educational in nature. It fulfills statutory requirements across TX, AZ, WV, and AR for independent student instruction in computer science concepts, digital citizenship, logic, and advanced critical thinking skills. No religious instruction or non-educational activities are included in this curriculum.