Course Overview: "Adventures in Coding: Build Your First AI App!"

Duration: 10 Sessions (2 Weeks)

Target Audience: Grade 3-4 Beginners (Ages 8-10)

Tools: MIT App Inventor

Course Philosophy: *"Learn by Creating"*

Course Outcomes

By the end of this course, students will:

1. Understand basic coding concepts (sequences, events, loops).
2. Build 5+ interactive apps using MIT App Inventor.
3. Explain AI in simple terms and create basic AI-powered apps.
4. Develop problem-solving and logical thinking skills.
5. Collaborate on projects and present their work confidently.

Daily Curriculum Breakdown

Week 1: Coding Fundamentals

Day	Topic	Objectives	Project	Assessment
1	What is an App?	- Understand app components (UI, logic) - Navigate MIT App Inventor	"Talk to Me" (Text-to-Speech)	Participation + Completed App
2	Game Design Basics	- Learn event-driven programming - Use collision detection	"Ball Bounce" game	Debugging challenges
3	Creative Storytelling	- Sequence animations - Integrate multimedia (images/sound)	"Digital Comic Maker"	Storyboard worksheet
4	Intro to AI	- Define AI in kid-friendly terms - Explore image recognition	"Emoji Mood Detector"	Quiz: "How AI Sees the World"

Day	Topic	Objectives	Project	Assessment
5	Mini Hackathon	- Apply Week 1 skills - Collaborate in teams	Customized app showcase	Peer feedback + Teacher rubric

Week 2: AI & Real-World Apps

Day	Topic	Objectives	Project	Assessment
6	Chatbots	- Understand Q&A logic - Create simple decision trees	"My First Chatbot"	Accuracy of bot responses
7	Voice Technology	- Explore voice assistants - Use speech recognition	"Voice Drawing Board"	Creativity in commands
8	Puzzle Games	- Develop logical reasoning - Use GPS/location concepts	"Treasure Hunt"	Problem-solving checklist
9	AI for Good	- Discuss ethical AI use - Design apps for social impact	"Save the Tigers Quiz"	Idea pitch to class
10	Demo Day	- Present projects - Reflect on learning	Final app showcase	Parent/teacher evaluation rubric

Pedagogical Approach

1. **Scaffolded Learning**:
   - Session 1-3: Concrete projects (visual output)
   - Session 4-6: Abstract thinking (AI logic)
   - Session 7-10: Creative application

2. **Inclusive Activities**:
   - Unplugged option: Use printed "block coding" cards for students without devices.
   - Pair programming: Team up advanced learners with beginners.

3. **Differentiated Instruction**:
   - **Extension**: Add complexity (e.g., score counters in games).
   - **Support**: Pre-built templates for struggling students.

Assessment Tools

1. **Formative**:
   - Thumbs-up/down check-ins
   - Screenshot journals (Students save daily progress)
2. **Summative**:
   - **Demo Day Rubric** (Rate creativity, functionality, presentation)
   - **Parent Feedback Form** (Post-course survey)

Materials Checklist

- **For Students**:
  - Worksheets (e.g., "Design Your Dream App")
  - Certificate templates
- **For Trainers**:
  - Troubleshooting guide (Common MIT App Inventor errors)
  - Sample apps for demonstration

Sample Lesson Plan (Day 4: Intro to AI)

Objective: Students will train a simple image classifier to detect emotions.

1. **Hook (10 mins)**:
   - Play Google Quick Draw; discuss how AI "learns" from examples.
2. **Direct Instruction (15 mins)**:
   - Demo "Emoji Mood Detector" app.
   - Teach: "AI is like teaching a baby – show it many pictures!"
3. **Guided Practice (20 mins)**:
   - Students add 3 emoji images (happy/sad/angry) to their app.
4. **Independent Practice (10 mins)**:
   - Customize: Change emoji colors or add sound effects.
5. **Wrap-up (5 mins)**:
   - Share: "How could this app help someone in real life?"

Post-Course Outcomes

- **Skills Gained**: Computational thinking, design mindset, AI literacy.
- **Tangible Takeways**:
    - Portfolio of 5+ apps
    - Certificate of Completion
    - Parent guide to continue learning at home