Micro:Bit Programming in JS
Suitable for: G7 - G10

Prerequisite: Introduction to Micro:Bit
Duration: 38 Weeks
Classes per Week: 1 class (45 minutes each)

Course Overview:
This course introduces students to programming with the Micro:Bit using JavaScript. Students will learn how to code and interact with the Micro:Bit's sensors, LED matrix, and other features to create fun and interactive projects. By the end of the course, students will have a foundational understanding of physical computing and coding in JavaScript.

Covered Topics

Unit 1: Getting Started with Micro:Bit and MakeCode

- Introduction to Micro:Bit and its components
- Basics of JavaScript coding with MakeCode
- Creating simple programs: Hello World, Beating Heart, and Number Display

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Unit 2: Basic Interactions and Conditions

- Programming buttons and sensors for user interaction
- Creating simple games and projects like Guess a Number and Happy Face
- Exploring conditional logic with “Yes or No” and sound detection projects

Unit 3: Sensors and Data Logging

- Using the Micro:Bit’s accelerometer and compass
- Projects like Heads Up, Timer, and Light Alarm
- Introduction to data logging: Environmental and Motion Data Loggers

Unit 4: Game Development and Complex Projects

- Creating interactive games like The Reaction Game and Buzzwire Game
- Building fun projects like Banana Keyboard and Virtual Pet
- Working with sensors to create Traffic Lights and Combination Lock systems

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Unit 5: Advanced Projects

- Designing advanced games like Snake Game, Paper Piano, and Shooting Game
- Final projects: Roll A Dice, Flappy Bird, and other creative applications

Materials Needed:

- Micro:Bit Device
- Computer or tablet
- Access to Internet
- Chrome Browser

Assessment

At the end of each lesson, learners will be assessed on their ability to apply programming concepts with Micro:bit , such as using sensors, LED matrix animations, and game development. Assessments will focus on creativity, coding accuracy, and functionality.

Certification

A certificate of completion will be awarded to students who successfully complete the course, recognizing their skills in Micro:Bit programming with JavaScript.