PB-1 (Programming Basics Part 1)
Syllabus v.1
MEIT (EIT School @ Myeik)

PB-1 is the first one of 3-course series PB-1, PB-2 and PB-3. Each of the 3 courses is expected to take about 3 months (12 ~ 13 weeks). This 3-course PB series is designed to substitute for an introductory EIT Pro course IT-PB that has been given to new EIT Pro trainees by the IT coach of EIT Pro. As a result of ongoing curriculum changes, successful completion of the PB series is required to applicants for admission to EIT Pro.

Major differences between IT-PB of EIT Pro and PB series of MEIT:

- IT-PB is taught by the IT coach of EIT Pro while the PB series of MEIT is taught by senior trainees of EIT Pro.
- IT-PB takes about 4 months, although the PB series takes 3 months x 3 = 9 months because EIT Pro trainees are given laptops from EIT Pro and can practice programming at home whereas most learners of the PB series don not have their own laptops and cannot practice programming at home. As a remedy for learners of the PB series, MEIT arranges self-practice time (30 min) just before and after each lesson so that they can use laptops of MEIT during the self-practice time.

Objectives of the PB Series

- Have learners acquire basic programming skills in JavaScript
- Introduce basic concepts of programming to learners
- Introduce website development (front-end and back-end) to learners

Prerequisite: ITL (IT Literacy Tutorial)
Term Length: 3 months (12 ~ 13 weeks)

Course Outline

\# 1   Getting Started

IDE Visual Studio Code
- Create a New Project
- Coding on an Editor
- Run a JavaScript Code

Input, Output, Variables, Data Types, and Assignments
- Simple Input/Output
  - console.log
  - alert
  - prompt
  - confirm
- Template Literals
- Variables, Data Types, and Assignments
  - Variable Identifiers
  - Primitive Data Types: number (integer, floating-point), string, boolean
  - Assignment of the Right-Hand Side Value into the Left-Hand Side Variable

\# 2   Arithmetic Expressions and Arithmetic Operators
- Operators +. -, *, /, **, %
- Precedence among Operators
- How to Use Parentheses for Disambiguation
- Assignment Operators +=, -=, *=, /=

\# 3   Branch Statements
- if-then Statement
- if-then-else Statement
- Nested if Statement
- switch case Statement

Arithmetic Comparisons and Logical Operators
- ==, !=, ===, !==
- <, <=, >, >=
- &&, ||, !

4   Debugging
- How to Use Debugger
- Try to Debug Buggy Example Code
- How to Narrow Down a Bug
- How to Trace an Execution of Code

Mini-Project
- Write a Program Using All #1 - #4

5   Introduction to HTML
- What Is HTML?
- Commonly Used Tags for Formatting
- Meta Tags in Header
- Creating Simple Web Pages
- Hyperlinks
- Embedded Images
- JavaScript Code Embedded in a Web Page
- Linking an External JavaScript File to an HTML File

6   String Data Type
- Input
- String Operators
- String Property length
- String Methods
- Output

7   JavaScript with a Simple HTML Form as a User Interface
- HTML DOM (Document Object Model)
- HTML Form
- Input Field (Textbox)
- Textarea
- Buttons
- Checkbox
- Output

8   Bounded Loops
- for Loop
- Iteration Upper Bound
- Iteration Step Operators (Increment or Decrement by ++ or --)
- break Statement

9   Indefinite Loops
- while Loop
- Termination Condition
- continue Statement and label Statement
- Caveat on an Infinite Loop

10   Project for Completion
- # 12
- Software Development in 2 ~ 3 Weeks
- Presentation & Demo by Each Learner