

Course Title: MATLAB/ Simulink for Processor in Loop **Course Code: EEA 163****Course Background / Summary:**

MATLAB/ Simulink has been widely used in Engineering research environments due to the ability of the software for complex computation in several engineering fields, this course will introduce participants to how to make use of MATLAB/Simulink for processors in loop (PIL) application. In the processor in Loop, the controller lies in real-time (hardware) but the system/Process is in MATLAB/ Simulink (software). Communication protocol will be used, and a PIC microcontroller will be the interface. The study system will be speed, position, and level

Course Objectives:

- Construct interface circuit using PIC microcontroller.
- Write C code for communication to transfer input, and output data signals from MATLAB/ Simulink to interface and vice versa.
- Control the speed, position, level, and temperature using the PIL technique.

Target Audience:

- Electricians, Research assistants, Research officer, Researcher, Academicians
- Technicians & Hobbyist
- Engineers & Instructors

Course Duration: 3 Days**Course Contents****1.0 Basic Knowledge about MATLAB/ Simulink and PIL****2.0 Theory of Control System****3.0 Construct Interface Circuit using PIC Microcontroller****4.0 Control Speed, Position, Level System with Aid of PIL System**