Course Title: Processor in Loop Theory, Practical and Application for Control System

Course Code: EEA 155

Course Background / Summary:

As control systems become more complex and integrated, the Processor in Loop (PIL) technique has gained prominence for testing and validating control algorithms in real-time scenarios. PIL involves integrating a control algorithm with a processor-based hardware platform to emulate real-world conditions. This course delves into the theory, practical implementation, and applications of Processor in Loop, enabling participants to effectively design, test, and optimize control systems.

Course Objectives:

- Understand the foundational concepts of Processor in Loop (PIL) and its role in control system development.
- Grasp the theoretical framework of PIL, including processor integration, algorithm implementation, and real-time emulation.
- Explore diverse applications of PIL across industries, such as industrial automation, robotics, and more.

Target Audience:

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

Course Duration: 4 Days

Course Contents

1.0 Introduction to Processor in Loop (PIL) Simulation: Principles and Significance

2.0 PIL Simulation Platforms and Hardware: Selection Criteria and Compatibility

3.0 Algorithm Integration with Processor Hardware: Interface Development and Implementation

4.0 PIL Simulation Setup: Configuration, Calibration, and Realistic Environment Emulation

5.0 Validation and Optimization: Testing Control Algorithms under Realistic Conditions