Course Name	:	Basics of process instrumentation
Course Code	:	PI01

Course Objective
Provides an introduction to the field of Instrumentation and covers process variables and the various instruments used to sense, measure, transmit and control these variables

	Duration of course = 40

Lecture/Lab wise breakup		Number of hours
1.	**INTRODUCTION** Introduction Process Instruments – Application of Process Instruments-Field Device Communication Protocols–Process Device Manager (PDM) Software- PLC and DCS.	**5**
2.	**FIELD DEVICES** **Pressure Transmitter**- Measurement Technologies-Features-ConfigurationCommissioning-Troubleshooting. **Temperature Transmitter**- Measurement Technologies-Features-Configuration Commissioning-Troubleshooting. **Flow Transmitter**- Measurement Technology (Mag flow, Mass flow, Ultrasonic flow) Features-Configuration-Commissioning-Troubleshooting. **Level Transmitter**- Measurement Technology (Ultrasonic, Radar, Capacitance)-Features- Configuration-Commissioning-Troubleshooting. **Electro Pneumatic Positioner**- Measurement Technology (Rotary)-Features Configuration-Commissioning-Troubleshooting	**20**
3.	**INTER CONNECTION** Interface- Process Device Manage Software-Field Device Coupler- Profibus PA- HART	**15**
Course Outcome	Students will demonstrate knowledge of commonly used process measurement devices, control methods and strategies, and the proper selection, identification, design, installation and operation of instrumentation.	

Course Name	:	Basic of Process Control System (DCS)
Course Code	:	PI02

Course Objective: Making participants familiar with SIMATIC PCS 7 System

	Duration of course = 40hrs.

Lecture/Lab wise breakup		Number of hours
1.	Introduction to standard architecture of PCS 7 like ES, AS, OS-Server & OS-Clients Introduction to AS Hardware like PS, CPU & CPs Communication of remote stations with AS.	8
2.	Working with SIMATIC Manager in PCS7 fashioned way. Exercises 1, Exercises 2 Exercises 3 (Creating the Multiproject and Configuring Hardware (AS & OS)) Working with different views like Component View & Plant View. Working with CFC Charts and develop logic using CFC charts Optimization of the charts.	**8**
3.	Working with SFC Charts and develop sequences using SFC charts Various control modes available with SFC charts Compiling, downloading & testing CFC & SFC charts Compiling Operator Station. Creating process pictures in Graphics editor User interface in Process Control mode.	**8**
4.	Working with standard faceplates, Messages and Trends. Introduction to Time synchronization, Life beat monitoring, Picture tree manager & user administration Introduction to OS Project Editor & Licensing Concept in PCS 7. Introduction of Server-Client architecture.	**8**
5.	System overview of SIMATIC WinCC V7.4,Tag Management, Project creation, Testing functions with variable simulation, Create Faceplate, User Administration option (introduction)	**8**
Course Outcome	After successful completion of this course, user will able to handle the process automation, design of DCS architecture.	