On Campus Industrial Internship for UG & PG Students

Four weeks Internship on Automation Technology

For Mechanical & Production Engineering



Features of the Training Program:

- ❖ Fundamental concepts in the area of industrial automation are covered.
- ❖ Lecture sessions from Industrial faculty and experts from other academic institutions are supported by demonstrations and applications videos.
- ❖ Hands on training on advanced trainer systems like Hydraulics, Pneumatics. Sensors, Drives, PLC,SCADA , Industry 4.0 ,Machine Learning and Artificial Intelligence.
- ❖ The course module is designed in consultation with Industrial Experts to suit the current industrial trends.
- ❖ Industrial visit to visualize the present day corporate practices.
- ❖ A course completion certificate will be awarded.
- ❖ Mid-Course and final tests conducted to ensure the learning of the course objectives.

The students who aspire to pursue a career in the field of industrial Automation are required to be well acquainted with the basic knowledge of essential components of Industrial Automation such as Hydraulics and Pneumatics devices, Programmable Logic Controller (PLC) and Sensorics. In the view of this, the training on these aspects of Industrial Automation has become need of the hour.

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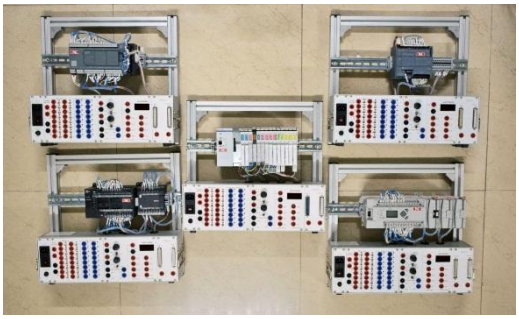
Target: BE/B-Tech with stream in Mechanical & Production Engineering.

Duration – 4 weeks

Sl.No	Topic	Duration
1.	Basic PLC	1 Week
2.	Industrial Hydraulics	1 Week
3.	Industrial Pneumatics	1 Week
4	Interfacing of PLC with Hydraulics & Pneumatics	4 Days
5	Case Study IoT Concept in Hydraulics	2 Days
6.	Mini Project Description and Execution	------
7.	Report Preparation	------

PLC

Course Contents :



- Overview of Automation Systems
- Basic Concepts of PLC
- Working Of PLC and General Application
- Hardware Details of PLC
- Related Software for PLC
- Indraworks software features explanation in details
- Project Development in PLC software
- Network Settings
- PLC Configuration
- Addressing the Variables
- Declaring variable names
- Adding & Declaring Timer
- Adding & Declaring Counters
- Adding NO/NC contacts
- Adding Timers and Counters
- Procedure to RUN the program on PLC kit
- PLC Programming
- Error messages encountered during programming and its solutions.
- ASSESSMENT TEST on PLC.

Pneumatics & Electro Pneumatics

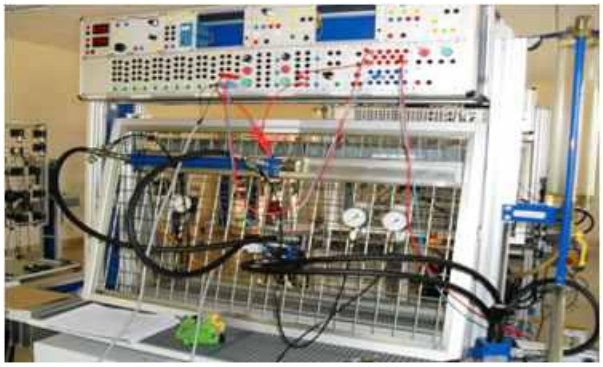
Course Contents:



- What is Pneumatics?
- Important basic terms
- Characteristics of Industrial Pneumatics
- Comparison of Pneumatics Vs Electrical / Electronics, Hydraulics and Mechanical
- Applications of Pneumatics
- Pressure.
- Pascal's Law.
- Force transmission
- Pressure transmission
- Displacement Transmission
- Calculations
- Flow rate and Flow Law
- Graphical Symbols and Pneumatics circuits.
- Generation of compressed air
- Processing of compressed air
- Maintenance unit
- Compressors
- Pneumatics Control valves
  i. PCV
  ii. FCV
  iii. DCV
- Introduction to Relay Based Control System
  - Function of Relays
  - SPDT contacts
  - Signal storage logic
  - AND and OR logic
- Experiments based on above topics.
- Troubleshooting and maintenance
- Safety considerations and Environmental issues.

Hydraulics & Electro Hydraulics

Course Contents:



- What is Hydraulics?
- Important basic terms
- Characteristics of Industrial Hydraulics
- Comparison of Hydraulics Vs Electrical / Electronics, Pneumatics and Mechanical
- Applications of Hydraulics
- Pressure.
- Pascal's Law.
- Force transmission
- Pressure transmission
- Displacement Transmission
- Calculations
- Flow rate and Flow Law
- Graphical Symbols and Hydraulic circuits.
- Hydraulic Fluids
- Hydraulic pumps
- Hydraulic Cylinder and Motor
- Hydraulic Control valves
  i. PCV
  ii. FCV
  iii. DCV
- Introduction to Relay Based Control System
  - Function of Relays
  - SPDT contacts
  - Signal storage logic
  - AND and OR logic
- Accumulator
- Experiments based on above topics
- Troubleshooting and maintenance
- Safety considerations and Environmental issues.