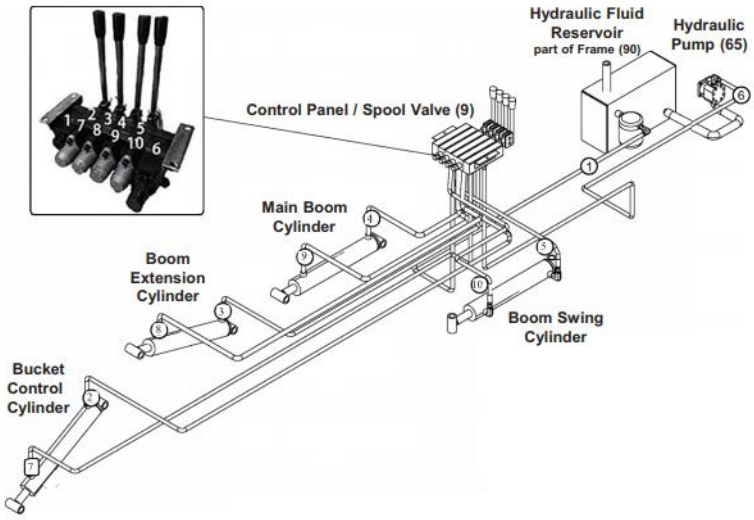
Hydraulic Pneumatic PLC: Trainer



Universiti Teknologi Malaysia

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

1 Programme Information

1.1 Aim and Overview

This program is an introductory course to Hydraulic and Pneumatic System. This course will go through Introduction to Fluid Power, basic concept, hydraulic power source, e Pneumatics System, Electro-pneumatic System
and then applying the concept using Hydraulic and Pneumatic for automation system. These controllers can automate a specific process, machine function, or even an entire production line.

1.2 Programme Objectives

- Innovate a product using design thinking method
- Understand basic concept behind actuator
- Explore Pneumatic cascade Circuit and examine programming systems
- Develop a Pneumatic Cascade circuit and its applications

1.3 Participants

TVET trainer

1.4 Course Durations

5 days, 8 hours per day

1.5 Venue

Hydraulic and Pneumatic Laboratory in Universiti Teknologi Malaysia, Kuala Lumpur

1.6 Course Provider and Facilitators

a) Associate Professor Ts. Dr. Morina Abdullah
b) Dr. Sahnius bte Usman
c) Ir. Dr. Shamsul Sarip

1.7 Teaching and Learning Activities

1. Active Learning Conducted through in class activities, Case study, presentation, Problem based learning and Debate.

2. Mini Scale Research Conducted through design thinking. Participants in a group have to develop a programming set for Hydraulic and Pneumatic application.

2 Programme Schedule

	Day	Activity
General Program	Day 1	Arrival and Check in
	Day 1	TVET : Issues TVET in Malaysia Accreditation TVET related to OBE Overview method of Teaching & Learning and Assessment in TVET
	Day 2	Introduction to Fluid Power System Basic Hydraulic and Pneumatic Simulation circuit Develop Pneumatic circuit and its application Hands-on developing a project on Pneumatic circuit
	Day 3	Introduction to Sensor Introduction to PLC Basic Programming of the PLC Programming the PLC and its application Hands-on developing a project on PLC
	Day 4	Develop Pneumatic Cascade circuit and its applications Hands-on developing a project on Pneumatic circuit Programming the PLC and its application Hands-on developing a project on PLC
	Day 5	Project Presentation and Conclusion

Details Schedule

Date	Time	Topic
Day 1	8:00 am 1.00pm	Registration And Check – in
	12:00 pm	Lunch
	1:00 pm	Break
	2:00 pm	Ice – breaking activity
	2.30 pm	• TVET in Malaysia Education • Accreditation • Outcome-based in TVET • Teaching & Learning in TVET • Assessment in TVET • Taxonomy: Educational Domains
	5:00 pm	Tea Break End of Day

Date	Time	Topic
Day 2	8:30 am	THEORY: • Hydraulics pumps • Pump efficiency • Symbols • Introduction to Hydraulic and Pneumatic circuit • Types of circuits • Manual and electrical control
	10.00 am	Coffee Break
	10:20 am	• Construction basic circuits: Components • The Operation Hydraulic and Pneumatic Simulation
	12:30am	Lunch & Break
	2:00 pm	• Hydraulic and Pneumatic Simulation Circuit • Introduction to Design of the Pneumatics System
	5:00 pm	Tea Break End of Day

Date	Time	Topic
Day 3	8:30 am	• Basic Pneumatic Diagram • Design the circuit Diagram with different applications • Develop Pneumatic circuit
	10.00 am	Coffee Break
	10:20 am	• Practice in using the Pneumatic bench • Introduction to Ladder Diagram • Design Ladder Diagram circuits
	12:30 pm	Lunch and Break
	2:00 pm	THEORY: • Relays (Mechanical & Electrical) • Sensors • Introduction to Programmable Logic Controller (PLC) • Types of PLC • PLC: Advantages and Disadvantages
	5:00 pm	Tea Break End of Day

Date	Time	Topic
Day 4	8:30 am	• Construction Of PLC: Components and Interfacing (Input and Output) • The Operation of PLC Unit Programming In PLC • Programming the PLC • Design the Ladder Diagram with Different Applications • Interface to External Components
	10:00 am	Coffee Break
	10:20am	• Types of Programming Ladder Diagram • Introduction to the Basic Instructions used in PLC
	12:30 pm	Lunch and Break
	2:00 pm	• Practice in Using the PLC (Programming & Interfacing) • Introduction to Timer and Counter • Design Ladder Diagram Using Timer and Counter Introduction to Project • Design the Ladder Diagram

	5:00 pm	Tea Break End of Day

Date	Time	Topic
Day 5	8:30 am	Project Presentation
	10:00 am	Coffee Break
	10:20 pm	Continue Project Presentation
	12:30 pm	Lunch and End of Module