NAAC A++ ACCREDITED CGPA 3.52/4.0

UGC RECOGNIZED

PDEU PANDIT DEENDAYAL ENERGY UNIVERSITY

Formerly Pandit Deendayal Petroleum University (PDPU)

CENTRE OF EXCELLENCE STATUS BY GOVT. OF GUJARAT

SCHOOL OF ENERGY TECHNOLOGY

Department of Electrical Engineering

Name of Laboratory : Process Dynamics and Control Lab

www.pdeu.ac.in

NAME OF EQUIPMENT :

Single Board Heater System(SBHS)

TECHNICAL SPECIFICATIONS :

- Design: IIT Bombay Open-Source Design
- Controller: Microcontroller ATmega16
- Temperature is sensed by AD590 temperature sensor
- Control Algorithm: PID (tunable Kp, Ki, Kd)
- Actuator Output: PWM signal (0–100% duty cycle)
- Display: 16×2 LCD + PC serial monitor
- Communication: USB/UART to PC
- Power Supply: 12V DC, 2A SMPS

NAME OF EQUIPMENT :

PLC Modules (Dual Conveyor Work Cell)

TECHNICAL SPECIFICATIONS :

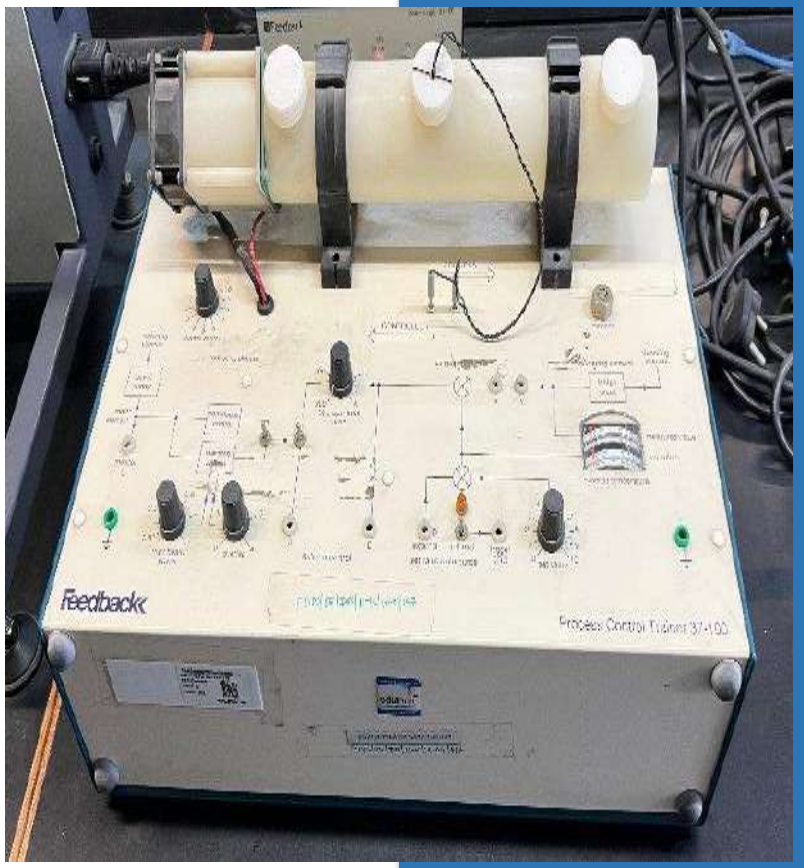
- Part selection by logical detection
- Induction and opto-electronic sensors
- Component sort and assembly process
- Interfaces to most major PLC types

NAME OF EQUIPMENT :

Process Control Trainer (37-100)

TECHNICAL SPECIFICATIONS :

- A Practical process in miniature
- Demonstrates closed and open loop continuous control as well as two step control
- Response times enables dynamic behavior to be seen on oscilloscope
- Meters with side by side pointers indicate set and measured values



NAME OF EQUIPMENT :

Transducer Kit (Sensor and Instrumentation System)

TECHNICAL SPECIFICATIONS :

Studies of sensor behavior, properties and characteristics, including:

- Strain gauges
- Linear and rotary potentiometers
- A linear variable differential transformer (LVDT)
- A variable-area capacitor
- A reed switch
- An opto-reflector
- An optical tachometer
- A d.c. tachogenerator
- A variable reluctance probe
- A four-bit optical encoder
- Data transmission
- An introduction to control principles

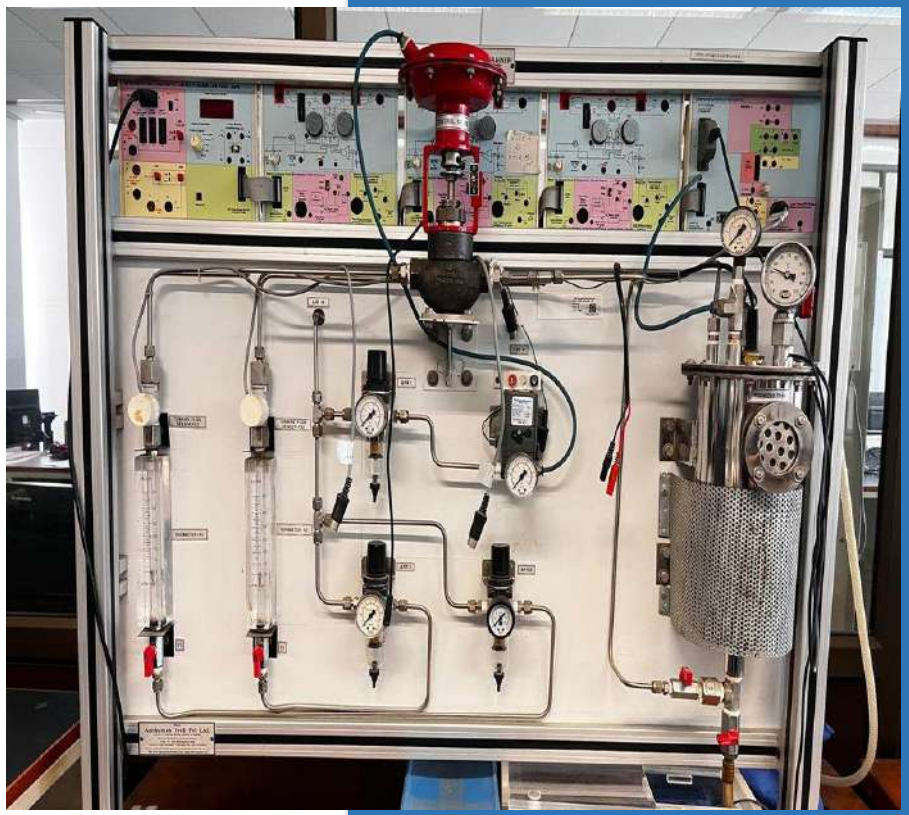
NAME OF EQUIPMENT :

Process Control Trainer(Pressure/Temperature/Flow)

TECHNICAL SPECIFICATIONS :

Computer Interface panel(CIP/PCT1)

- Process Variables: Pressure, Temperature,Flow
- 4 ADC channels I/P: 0 to 2.5V FS with 1no input simulation pot. 1 DAC channel O/P2.5V
- V to I function block: I/P 0 to 2.5V & O/P 0-20 or 4-20mA
- I to V function block : I/P4 to 20mA& O/P0 – 2.5V
- Controller: PC base digital PID controller
- Thyristor bridge based firing circuit
- Supports signal conditioning for RTD, Pressure sensor with Instrumentation Amplifier & flow sensor (water / air) with F to V converter to generate 0 2.5Vdc (FS).



NAME OF EQUIPMENT :

Process Control Trainer(Flow-Level with pneumatic control valve)

TECHNICAL SPECIFICATIONS :

- Computer Interface panel
- Signal Conditioning panel
- Pneumatically operated air to close
- Level measurement by bubbler method