

**MECHATRONIC LAB**

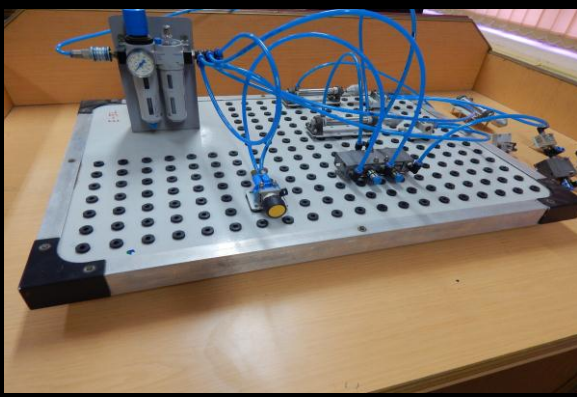
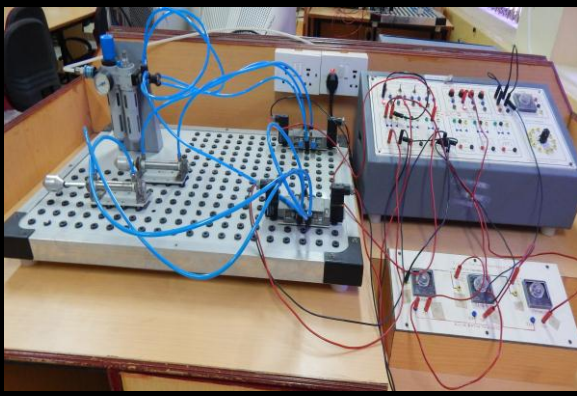
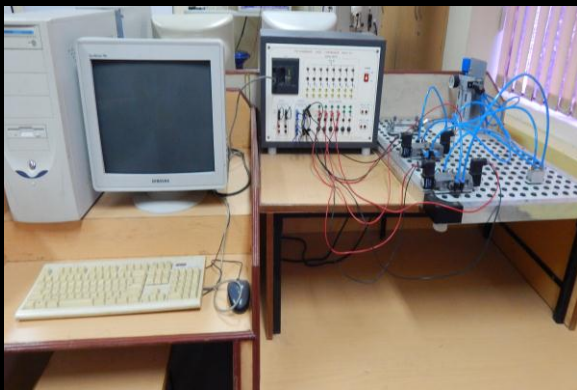
**ROOM NO: 4201, MECHANICAL DEPARTMENT**



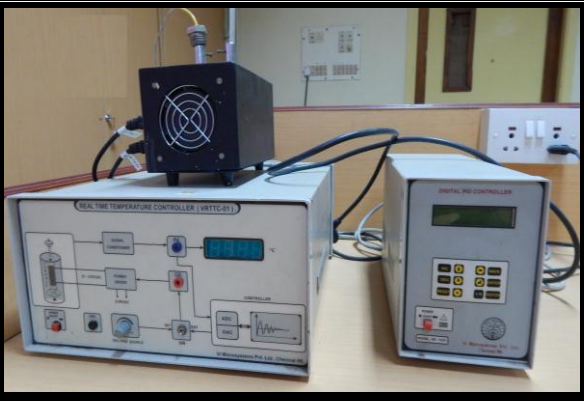

**INTERCOM: 418**

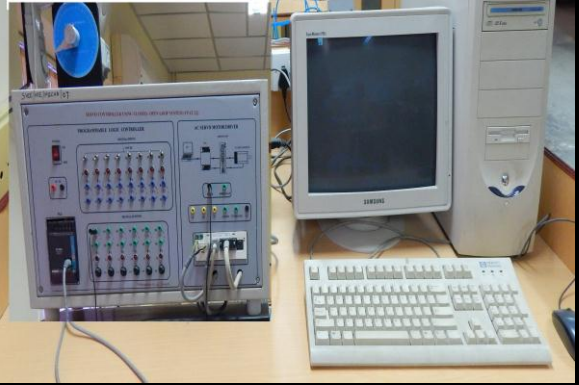



**INCHARGE: Mr. M. MOHANDASS, Associate Professor, Mechanical**




**ASSOCIATE INCHARGE: K. KARTHEE, Assistant Professor, Mechanical**

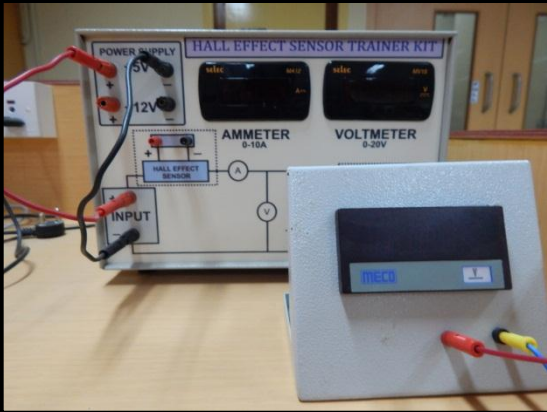


**SUPPORTING STAFF: Mr. E. RAMAN, Mechanic Grade-I, Mechanical**




SI.No	EQUIPMENT DETAIL	PHOTO
1	<b>BASIC LEVEL PNEUMATIC TRAINER KIT</b> Festo components with working pressure 2-10 bar. Consists of pilot operated control valves and linear actuators.	
2	<b>BASIC ELECTRO PNEUMATIC TRAINER KIT</b> Festo components with working pressure 2-10 bar, 24 V D.C supply. Consists of solenoid operated control valves and linear actuators.	
3	<b>BASIC ELECTRO PNEUMATIC TRAINER KIT WITH PLC</b> Festo components with working pressure 2-10 bar, 24 V D.C supply. Consists of solenoid operated control valves and linear actuators. GE Fanuc PLC with ladder programming software.	




<p><b>4</b></p>	<p><b>CONTROL OF HYDRAULIC LINEAR ACTUATOR USING LAB VIEW.</b> Solenoid operated DCV, FCV, One powder coated tank with capacity of 25 lts., Linear actuator with 40 mm bore size, 30 mm piston dia., 150 mm stroke length. LabVIEW software and DAC.</p>	 <p>A photograph of a hydraulic linear actuator system. It features a blue metal cabinet with a label that reads "HYDRAULIC LINEAR ACTUATOR SYSTEM" and "SVC/ET/ME/MEC/CA/04". On top of the cabinet, there is a computer monitor displaying a LabVIEW interface, a keyboard, and various hydraulic components including a tank, valves, and a linear actuator. The setup is on a wooden desk in a laboratory environment.</p>
<p><b>5</b></p>	<p><b>DIGITAL PID CONTROLLER – D.C MOTOR CONTROL.</b> Intel 8051 Microcontroller based CPU, 2 Rowx16 column LCD Dot Matrix with back light Display Alphanumeric Display, Input Range: 0-5 DC, Single channel analog O/P 0-5 V, I/P: 0-5 V/4-20MA, O/P: 0-5 V/ 4-20 MA.</p>	 <p>A photograph of a digital PID controller setup. It shows a computer monitor displaying a control interface, a keyboard, and a mouse on a wooden desk. In the background, there is a desktop computer tower and a power supply unit. The setup is used for controlling a DC motor.</p>
<p><b>6</b></p>	<p><b>DIGITAL PID CONTROLLER – TEMPERATURE CONTROL.</b> Intel 8051 Microcontroller based CPU, 2 Rowx16 column LCD Dot Matrix with back light Display Alphanumeric Display, Input Range: 0-5 DC, Single channel analog O/P 0-5 V, I/P: 0-5 V/4-20MA, O/P: 0-5 V/ 4-20 MA.</p>	 <p>A photograph of a digital PID controller for temperature control. It features a white control unit with a digital display and a keypad. A black fan is mounted on top of the unit. The unit is connected to a power supply and other components. The setup is used for controlling a temperature.</p>
<p><b>7</b></p>	<p><b>8051 MICROCONTROLLER – STEPPER MOTOR.</b> 8051 Microcontroller at 12 MHz , 8 K Bytes of EPROM expandable to 32 K Bytes, 8 K Bytes of RAM expandable to 32 K Bytes, IBM PC Keyboard, Software-Built-in Line assembler &amp; Disassembler, Built-in SMPS Power supply, I/P: 230V AC @50Hz, O/P: +5 V/ 1Amp &amp; 12 V/ 150 mA, Software-Full step resolution mode, half step resolution mode, milli step resolution mode.</p>	 <p>A photograph of an 8051 microcontroller setup for a stepper motor. It shows a green printed circuit board (PCB) with various components, including a microcontroller, resistors, and a power supply. A white IBM PC keyboard is connected to the setup. The setup is used for controlling a stepper motor.</p>


<p><b>8</b></p>	<p><b>A.C SERVO MOTOR CONTROLLER - CLOSED / OPEN LOOP SYSTEM.</b></p> <p>AC Servomotor- &amp; AC Servo Drive-make Panasonic E Series, PLC-Fatek I/P-8, O/P-6 NPN Type</p>	 <p>The image shows a laboratory setup for an AC servo motor controller. On the left is a grey control panel with various terminals and a digital display. To its right is a desktop computer system consisting of a monitor, a tower PC case, and a keyboard. Cables connect the control panel to the computer.</p>
<p><b>9</b></p>	<p><b>MULTI PROCESS STATION-TEMPERATURE/FLOW/PRESSURE CONTROL.</b></p> <p>Electro pneumatic converter I/P: 4-20 mA, O/P: 3-15 PSI, Flow rate of water-Range:0-6500 MMWC, Type: DPT +SMART, O/P 4-20 mA, Data Acquisition card , Software Data acquisition control software</p>	 <p>The image shows a multi-process control station. A large control panel with multiple gauges and switches is mounted on a metal stand. Below the panel, there is a complex arrangement of pipes, valves, and a blue actuator. A desktop computer with a monitor and keyboard is positioned to the right, connected to the system for data acquisition.</p>
<p><b>10</b></p>	<p><b>MULTI PROCESS STATION-TEMPERATURE/FLOW/PRESSURE CONTROL.</b></p> <p>Electro pneumatic converter I/P: 4-20 mA, O/P: 3-15 PSI, Flow rate of water-Range:0-6500 MMWC, Type: DPT +SMART, O/P 4-20 mA, Data Acquisition card , Software Data acquisition control software</p>	 <p>This image provides a closer view of the multi-process station. The control panel is more prominent, showing several analog meters and a digital readout. The electro-pneumatic converter and associated piping are clearly visible on the lower level of the stand.</p>
<p><b>11</b></p>	<p><b>ANGULAR DISPLACEMENT MEASUREMENT POTENTIOMETER STUDY TRAINER KIT.</b></p> <p>O/p voltage 0-2 V (final o/p range 0-5 v after amplification), Angle measurement 0-180 degree, amplifier, digital volt meter</p>	 <p>The image shows an angular displacement measurement potentiometer study trainer kit. It includes a green potentiometer mounted on a circular base with a scale. Next to it is a grey amplifier box with a digital display. To the right is an open white box containing a green printed circuit board (PCB) with various electronic components.</p>

<p><b>12</b></p>	<p><b>STRAIN MEASUREMENT TRAINER MODULE</b></p> <p>Strain gauge tutor, cantilever beam set-up, mV Voltmeter</p>	
<p><b>13</b></p>	<p><b>TORQUE MEASUREMENT TRAINER KIT</b></p> <p>I/P: 0-1 kg-m ; O/P : 0-5 V : trimpots; power supply; Display unit (3.5 digits seven segment)</p>	
<p><b>14</b></p>	<p><b>DISPLACEMENT MEASUREMENT TRAINER KIT (LVDT)</b></p> <p>(ref – I&amp; C lab -03 user manual)</p>	

<p><b>15</b></p>	<p><b>HALL EFFECT TRANSDUCER (VOLTAGE &amp; CURRENT MEASUREMENT)</b></p> <p>100 mV/A o/p sensitivity, 5V i/p, 80 KHz bandwidth, 1.2 mOhms internal conductor resistance, 2.1 KVRMS min. isolation voltage</p>	
<p><b>16</b></p>	<p><b>OPERATIONAL –AMPLIFIER APPLICATION TRAINER KIT</b></p> <p>IC 741, +12 V &amp; -12 V power supplies, 5 V variable Voltage inputs</p>	
<p><b>17</b></p>	<p><b>ELECTRO HYDRAULIC TRAINER KIT WITH PLC</b></p> <p>Spec: with two double acting cylinders with Proximity sensors and DCV; Siemens SIMANTIC S7-1200 PLC</p>	

<p><b>18</b></p>	<p><b>PIEZO-ELECTRO TRANSDUCER TRAINER KIT</b>  Force rating: 5N, Frequency Range: 50Hz to 1KHz, Max. Static load on shaker spindle: 100gm.  Measurement Range  Acceleration: 0.1-199.0 m/s<sup>2</sup>  Velocity: 0.01 – 19.99 (rms)  Displacement: 0.03 – 1.999 mm  Output: Analog AC output 2V pK F.S</p>	
<p><b>19</b></p>	<p><b>TEMPERATURE TRANSDUCERS-THERMOCOUPLE/THERMISTOR/RTD</b>  <b>Thermocouple:</b> Temperature chamber with thermometer, one K-Type thermocouple, mV Voltmeter  <b>RTD:</b> Temperature chamber with thermometer, one PT-100 type RTD, mV Voltmeter  <b>Thermistor:</b> Temperature chamber with thermometer, one NTC 5KOhms thermistor, mV Voltmeter</p>	
<p><b>20</b></p>	<p><b>OPTICAL TRANSDUCER TRAINER KIT</b>   (ref OFT user manual)</p>	

<p><b>21</b></p>	<p><b>D.C BRUSH SERVO MOTOR CONTROLLER</b></p> <p>DC Servomotor- &amp; DC Servo Drive- make Panasonic E Series, PLC- Fatek I/P-8, O/P-6 NPN Type</p>	
<p><b>22</b></p>	<p><b>AIR COMPRESSOR</b> KEC Air Compressor (Specification:1HP; 650 rpm )</p>	
<p><b>23</b></p>	<p><b>DESKTOP COMPUTERS &amp; PRINTER CUM SCANNER</b> <b>Computer:</b> Processor: Intel(R) core (TM) i3-2100 CPU @3.10 GHZ; 4-GB RAM; 32-bit Windows 7 OS <b>Printer:</b> Brother 1050 series (With scanner)</p>	

<b>24</b>	<b>LCD PROJECTOR WITH AUDIO SYSTEM</b> (EPSON EB – X11)	
<b>25</b>	<b>LAB VIEW SOFTWARE (v8.5)</b>	<b>20 Licences</b>
<b>26</b>	<b>AUTOMATION STUDIO SOFTWARE (v6.1 – Educational Edition)</b>	<b>5 Licences</b>



