



I	SECTION CODE	CT
II	SECTION NAME	CONTROL TECHNOLOGY LAB
III	COURSE CODE	IHPC-01
IV	COURSE TITLE	INDUSTRIAL HYDRAULICS
V	DURATION	01 Week
IV	OBJECTIVES	
On completion of the course, the learner will be able to understand the Hydraulic controls used in industry and able to demonstrate the practical competencies as stated in below contents.		

VI Course Content :

Theory topics	Practical Topics
<p>Fundamentals of Hydraulics. Symbols of various Hydraulic elements as per international standards and their interpretation.</p> <p>Application of different types of hydraulic components like actuators, directional control valves, flow control valves, hydraulic accumulator, etc.</p> <p>Analysis and development of hydraulic circuits for frequently used applications in industry.</p>	<p>Construction of hydraulic circuits using all frequently used valves like check valves, flow control valve, pressure relief valve, actuators, directional control valves, hydraulic accumulator, accumulator, lifting of weight etc.</p>



I	SECTION CODE	CT
II	SECTION NAME	CONTROL TECHNOLOGY LAB
III	COURSE CODE	IHPC-02
IV	COURSE TITLE	INDUSTRIAL PNEUMATICS
V	DURATION	01 Week
IV	OBJECTIVES	
On completion of the course, the learner will be able to understand the Pneumatic controls used in industry and able to demonstrate the practical competencies as stated in below contents.		

VI Course Content :

Theory topics	Practical Topics
<p>Fundamentals of Pneumatics. Symbols of various pneumatic elements as per international standards & their interpretation.</p> <p>Application of different types of pneumatic actuators, directional control valves, flow control valves, time delay valves, logic OR valve, logic AND valve, etc.</p> <p>Analysis and Development of pneumatic circuits for different applications in industry.</p>	<p>a) Direct Control of a single / double acting cylinder.</p> <p>b) Indirect Control of a single /double acting cylinder.</p> <p>c) Control of a single/Double acting cylinder from 2 positions.</p> <p>d) Control of single / Double acting cylinder via two pressure valve.(logic AND valve)</p> <p>e) Control of single / double acting cylinder via shuttle valve. (logic OR valve)</p> <p>f) Automatic return of a double acting cylinder via a limit switch.</p> <p>g) Speed regulation of single acting and double acting cylinders.</p>



I	SECTION CODE	CT
II	SECTION NAME	CONTROL TECHNOLOGY LAB
III	COURSE CODE	IHPC-03
IV	COURSE TITLE	INDUSTRIAL HYDRAULICS AND PNEUMATIC CONTROLS
V	DURATION	02 Weeks
IV	OBJECTIVES	
On completion of the course, the learner will be able to understand the Hydraulic and pneumatic controls and able to demonstrate the practical competencies as stated in below contents.		

VI Course Content :

Theory topics	Practical Topics
<p>Fundamentals of Hydraulics & Pneumatics. Symbols of various Hydraulics & Pneumatic elements as per international standards and their interpretation.</p> <p>Application of different types of pneumatic actuators, directional control valves, flow control valves, time delay valves, logic OR valve, logic AND valve, etc.</p> <p>Application of different types of hydraulic components like actuators, directional control valves, flow control valves, hydraulic accumulator, etc.</p> <p>Analysis and development of hydraulic & pneumatic circuits for different applications in industry.</p>	<p><u>PNEUMATICS:</u></p> <ol style="list-style-type: none"> a) Direct Control of a single / double acting cylinder. b) Indirect Control of a single /double acting cylinder. c) Control of a single/Double acting cylinder from 2 positions. d) Control of single / Double acting cylinder via two pressure valve.(logic AND valve) e) Control of single / double acting cylinder via shuttle valve. (logic OR valve) f) Automatic return of a double acting cylinder via a limit switch. g) Speed regulation of single acting and double acting cylinders. <p><u>HYDRAULICS:</u></p> <p>Construction of hydraulic circuits using all frequently used valves like check valves, flow control valve, pressure relief valve, actuators, directional control valves, hydraulic accumulator, etc.</p>



I	SECTION CODE	CT
II	SECTION NAME	CONTROL TECHNOLOGY LAB
III	COURSE CODE	IHPC-04
IV	COURSE TITLE	ELECTRO- PNEUMATICS FOR AUTOMATION
V	DURATION	01 Week
IV	OBJECTIVES	
On completion of the course, the learner will be able to understand the basics and applications of electro- pneumatics controls used in Industries and able to demonstrate the practical competencies as stated in below contents.		

VI Course Content :

Theory topics	Practical Topics
Fundamentals of pneumatics & Electricity. Industrial automation using Pneumatic and Electro pneumatic controls. Applications of various electro-pneumatics components such as single & double solenoid directional control valves, cylinders, time delay valves, etc. Analysis and development of pneumatic and electro-pneumatic circuit diagrams.	a) Direct actuation of cylinder using single solenoid valve. b) Indirect actuation of cylinder using single solenoid valve. c) Logic control of cylinder. d) Control of cylinder using electrical latching circuit. e) Control of cylinder using double solenoid valve. f) Semi-automatic operation of a cylinder using limit switch. g) Semi-automatic of a cylinder using inductive proximity sensor. h) Semi-automatic of a cylinder using capacitive proximity sensor.