

# GUJARAT TECHNOLOGICAL UNIVERSITY

## DIPLOMA IN PLASTICS ENGINEERING

### Semester: 4

**Subject Name   HYDRAULICS AND PNEUMATICS**

Sr.No	Course content
1.	<b>BASIC CONCEPTS OF HYDRAULICS</b> <ol style="list-style-type: none"> <li>Intorduction &amp; Definitions of important terms like Hydraulics, Pressure, Force, Vaccum etc.</li> <li>Pascal's Law and its Application to Hydraulics</li> <li>Bernoulli's Principle</li> <li>Hydraulic Jack</li> <li>Hydraulic Symbols</li> <li>Advantages and Disadvantages of Hydraulic System</li> <li>Hydraulic Oil               <ol style="list-style-type: none"> <li>Purpose of Hydraulic Oil</li> <li>Ideal Characteristics of Hydraulic Oil</li> <li>Maintenance of Hydraulic Oil</li> </ol> </li> </ol>
2.	<b>ACCESORY OF HYDRAULIC SYSTEM</b> <ol style="list-style-type: none"> <li>Connectors               <ol style="list-style-type: none"> <li>Steel pipe</li> <li>Tubing</li> <li>Hose</li> </ol> </li> <li>Gauges</li> <li>Packing &amp; Seals</li> <li>Filters &amp; Strainers</li> <li>Hydraulic Tank</li> </ol>
3.	<b>HYDRAULIC VALVES AND AUXILLIARIES</b> <ol style="list-style-type: none"> <li>Directional Control Valves</li> <li>Pressure Control Valves</li> <li>Flow Control Valves</li> <li>Pressure Intensifiers</li> <li>Accumulators</li> </ol>
4.	<b>HYDRAULIC PUMPS AND MOTORS</b> <ol style="list-style-type: none"> <li>Pump Specifications</li> <li>Construction &amp; Working of               <ol style="list-style-type: none"> <li>Gear Pump</li> <li>Vane Pump</li> <li>Radial Piston Pump</li> </ol> </li> <li>Pump Maintenance &amp; Trouble Shooting</li> <li>Hydraulic Motor Specifications Hydraulic Motors – Constructional Details &amp; Working</li> </ol>
5.	<b>HYDRAULIC CIRCUITS</b> <ol style="list-style-type: none"> <li>Clamp Control Circuit</li> <li>Injection Control Circuit</li> <li>Reciprocating Screw Circuit</li> <li>Oil Filtration Circuit</li> <li>Deceleration Circuit</li> </ol>

	6. Prefill Circuit 7. Hydraulic Motor Circuit 8. Hi-Low Pump Circuit
6.	<b>PNEUMATICS</b> <ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Comparison with Hydraulic System</li> <li>3. Air Compressors : Single Acting and Double Acting</li> <li>4. Components of Pneumatic System             <ol style="list-style-type: none"> <li>a. Intercooler</li> <li>b. Lubricator</li> <li>c. Air Filter</li> </ol> </li> <li>5. Pneumatic Circuit for Plastic Processing Machine</li> </ol>

### Reference Books:

SR. NO.	NAME OF REFERENCE	AUTHOR
1	Vicker's Industrial Hydraulic Manual	-
2	Injection Moulding	Irvin I. Rubin
3	Hydraulics and Pneumatics	Andrew Parr
4	Injection Moulding Machine	Whelan