

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA IN PLASTICS ENGINEERING
Semester: 4

Subject Name HYDRAULICS AND PNEUMATICS

| Sr.No | Course content |
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| 1. | <p>BASIC CONCEPTS OF HYDRAULICS</p> <ol style="list-style-type: none"> 1. Intorduction & Definitions of important terms like Hydraulics, Pressure, Force, Vaccum etc. 2. Pascal's Law and its Application to Hydraulics 3. Bernoulli's Principle 4. Hydraulic Jack 5. Hydraulic Symbols 6. Advantages and Disadvantages of Hydraulic System 7. Hydraulic Oil <ol style="list-style-type: none"> a. Purpose of Hydraulic Oil b. Ideal Characteristics of Hydraulic Oil c. Maintenance of Hydraulic Oil |
| 2. | <p>ACCESORY OF HYDRAULIC SYSTEM</p> <ol style="list-style-type: none"> 1. Connectors <ol style="list-style-type: none"> a. Steel pipe b. Tubing c. Hose 2. Gauges 3. Packing & Seals 4. Filters & Strainers 5. Hydraulic Tank |
| 3. | <p>HYDRAULIC VALVES AND AUXILLIARIES</p> <ol style="list-style-type: none"> 1. Directional Control Valves 2. Pressure Control Valves 3. Flow Control Valves 4. Pressure Intensifiers 5. Accumulators |
| 4. | <p>HYDRAULIC PUMPS AND MOTORS</p> <ol style="list-style-type: none"> 1. Pump Specifications 2. Construction & Working of <ol style="list-style-type: none"> a. Gear Pump b. Vane Pump c. Radial Piston Pump 3. Pump Maintenance & Trouble Shooting 4. Hydraulic Motor Specifications Hydraulic Motors – Constructional Details & Working |
| 5. | <p>HYDRAULIC CIRCUITS</p> <ol style="list-style-type: none"> 1. Clamp Control Circuit 2. Injection Control Circuit 3. Reciprocating Screw Circuit 4. Oil Filtration Circuit 5. Deceleration Circuit |

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

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 |