**Fr. Conceicao Rodrigues College Of Engineering**

Father Agnel Ashram, Bandstand, Bandra-west, Mumbai-50

**Department of Production Engineering**

**B.E. (Production) (Semester VII)  (2020-2021)**

**Lecture Plan**

**Subject: Fluid Power and Automation Laboratory                     Credits - 1**

**Objectives:**

1. To familiarize with software based pneumatics, electro-pneumatics and PLC circuits’ simulation.

2. To familiarize with setup and execution of pneumatics, electro-pneumatics and PLC circuits on an experimental kit.

**Outcomes:** The learner will be able to…

1. Design & Simulate Pneumatic, Electro-Pneumatic and PLC based circuits on any compatible software.

2. Setup and execute Pneumatic, Electro-Pneumatic and PLC based circuits on an experimental kit.

3. Design & Simulate PLC based circuits (Ladder Diagram) on any compatible software.

4. Set up and execute Pneumatic circuits on an experimental kit.

5. Set up and execute electro-pneumatic circuits on an experimental kit.

6. Set up and execute PLC based circuit on an experimental kit

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| **Sr no** | **Circuit Design/Assignment** |
| 01 | Designing & Simulation of two pneumatic circuits on any compatible software. |
| 02 | Designing & Simulation of two electro-pneumatic circuits on any compatible software. |
| 03 | Designing & Simulation of two PLC based circuits (Ladder Diagram) on any compatible software. |
| 04 | Two Pneumatic circuits Setup and execution on experimental kit. |
| 05 | Two Electro-Pneumatic circuits Setup and execution on experimental kit. |
| 06 | Two PLC based circuits Setup and execution on experimental kit. |

**PRACTICAL PLAN**

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| **Subject:** | **Fluid Power and Automation** |
| **Academic Year:** | 2019-20 |
| **Name of the Teacher:** | Mr. Saurabh Korgaonkar |

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| **Week No.** | **Topics** | **Module** | **Hours** |
| **Week 1**  27/7/2020  To  31/7/2020 | **Introduction to Pneumatics**: Basic single cylinder circuits for single acting cylinder and double acting cylinder. Explanation of accessories required for pneumatics | **4** | **2** |
| **Week 2**  3/8/2020  To  7/8/2020 | **Pneumatic sensors and Throttling:** Circuits related to throttling, limit switches and combination valves (time delay and pressure sequence valve) | **4** | **2** |
| **Week 3**  10/8/2020  To  14/8/2020 | **UNIT TEST I** |  |  |
| **Week 4**  17/8/2020  To  21/8/2020 | Multiple Cylinder circuits & Simulation of the circuit on the Festo Software | **1** | **2** |
| **Week 5**  **24/8/2020**  **To**  **28/8/2020** | Multiple Cylinder circuits: Cascade | **1** | **2** |
| **Week 6**  31/8/2020  To  4/9/2020 | Introduction to Electro Pneumatics : Introduction to components used in electro-pneumatics, Basic single cylinder circuits for single acting cylinder and double acting cylinder. | **5** | **2** |
| **Week 7**  7/9/2020  To  11/8/2019 | Sensor and Transducers.: Introduction to Inductive, capacitive and Optical Sensors in Pneumatics and Simulation of the circuits on Festo | **2** | **2** |
| **Week 8**  14/9/2020  To  18/9/2020 | Mid Term Break |  |  |
| **Week 9**  21/9/2020  To  25/9/2020 | Electro-Pneumatics and PLC: Introduction to PLC, Its interfacing with the Computer and Demonstration | **3** | **2** |
| **Week 10**  28/9/2020  To  2/10/2020 | Electro-Pneumatics and PLC: Introduction to PLC, Its interfacing with the Computer and Simulation | **6** | **2** |
| **Week 11**  5/10/2020  To  9/10/2020 | **Hydraulic Circuit Design:** Introduction to Hydraulics, Intensifier circuits, Regenerative Circuit, |  | **2** |
| **Week 12**  12/10/2020  To  16/10/2020 | **Hydraulic Circuit Design:** Counter balance valve circuit and sequencing circuits. | **6** | **3** |
| **Week 13**  7/10/2019  To  11/10/2019 | Practice Practical and Term work Submission |  |  |
| **Week 14**  14/10/2019  To  18/10/2019 | **Unit Test II** |  | **4** |