**COURSE – PLC AND SCADA** **COURSE CODE – 18INT52**

**Experiment Number – 1**
**Duration - 2 Hours**

**Title of Experiment –**

1. Understanding of Components used in Electrical Panels,
2. Opening of the PLC Software and Menus available in software.
3. Programming of Logic Gates

**Objective of the Experiment**

The students are required to understand the following –

- Components used in the Electrical Panels i.e. DOL Starter and Star Delta Starters.
- Opening of PLC Softwares and Menus available in software.
- Basic Programming - Logic Gates, DOL Starter

**Intended Learning Outcomes :** At the end of the experiment the student should be able to

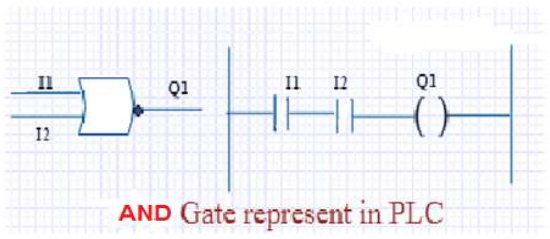
1. Recognize the components used in Electrical Panel
2. PLC Software Opening and understanding the menus available.
3. How to use the menus while programming.
4. Basic Programming – Logic Gates / DOL Starter

**Software/Equipment/Tools Required:**

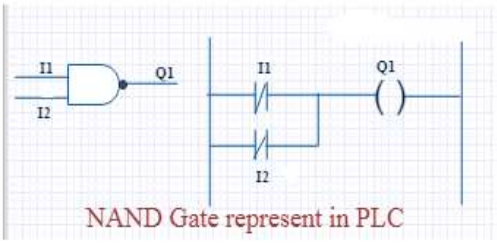
PC, PLC Software, MCB, Power Contactor, Over load Relay.

**Circuit Diagram :**

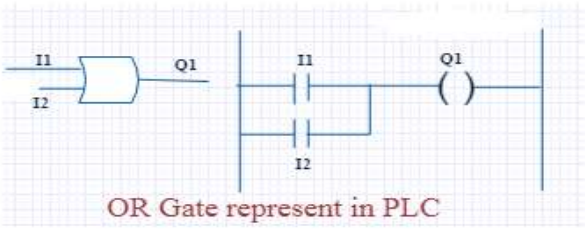
**Logic Gates**



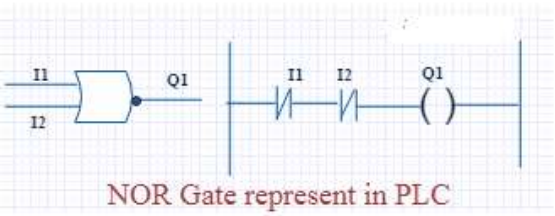
AND Gate represent in PLC



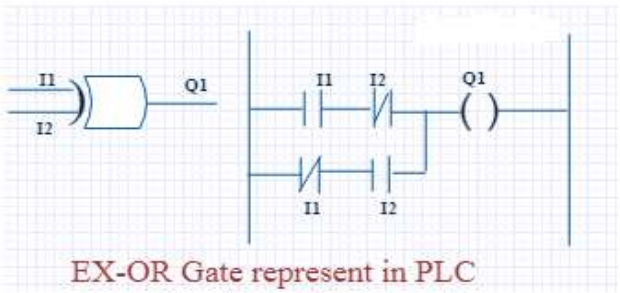
NAND Gate represent in PLC



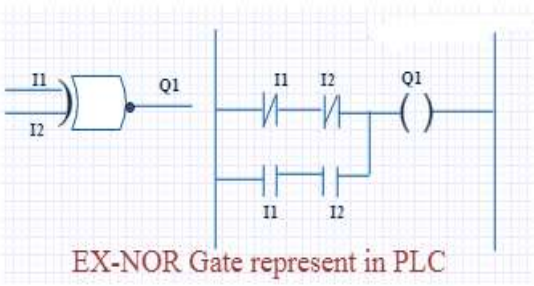
OR Gate represent in PLC



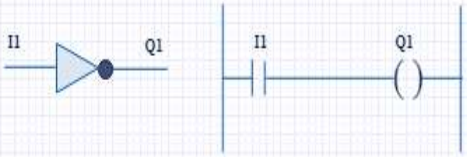
NOR Gate represent in PLC



EX-OR Gate represent in PLC

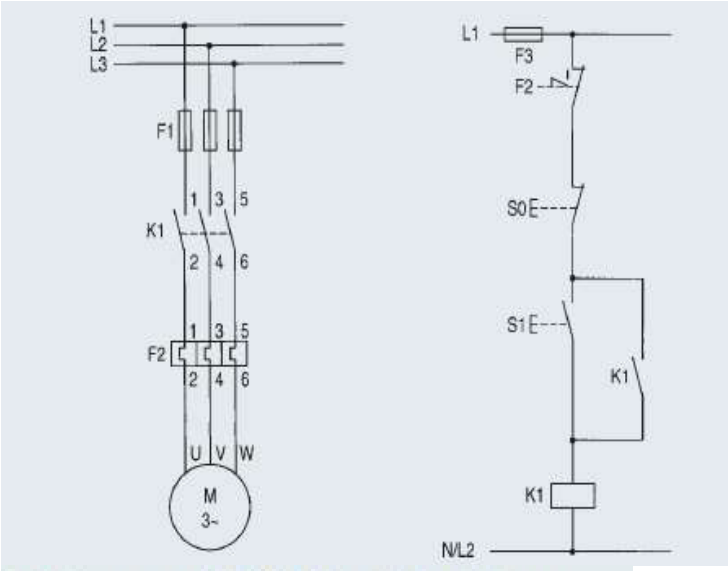


EX-NOR Gate represent in PLC



NOT Gate represent in PLC

## DOL STARTER

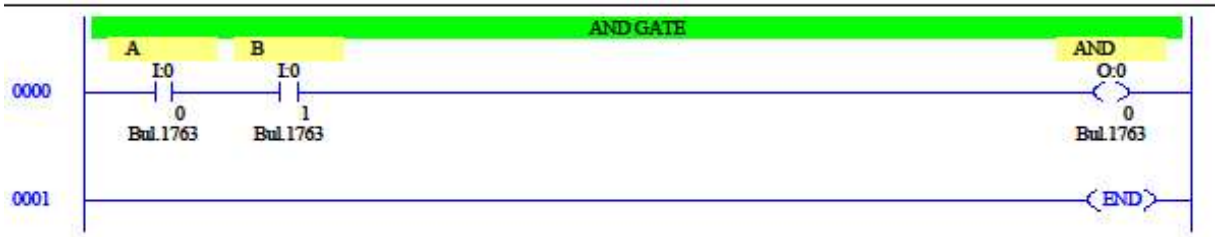



S0 = 'OFF' Push button
S1 = 'ON' Push button
K1 = Main contactor
F1 = Main circuit fuse
F2 = Overload relay
F3 = Control circuit fuse

## Write the Ladder Programme -

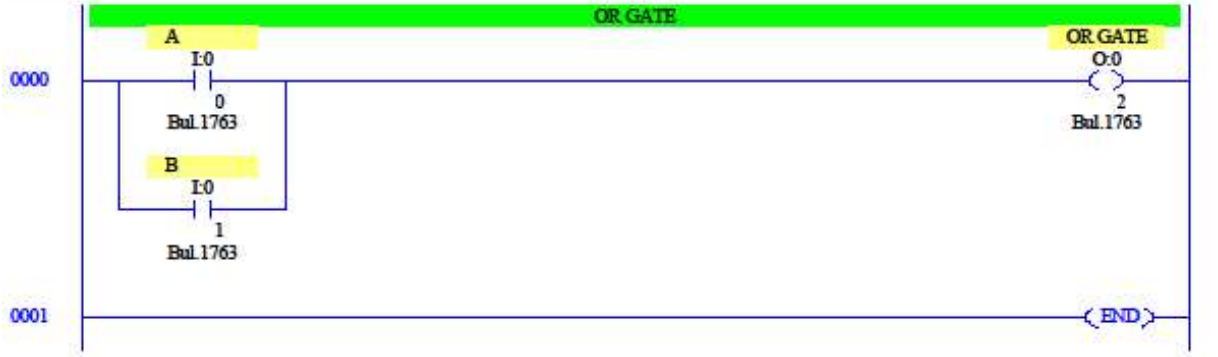
AND GATE

LAD 2 - --- Total Rungs in File = 2



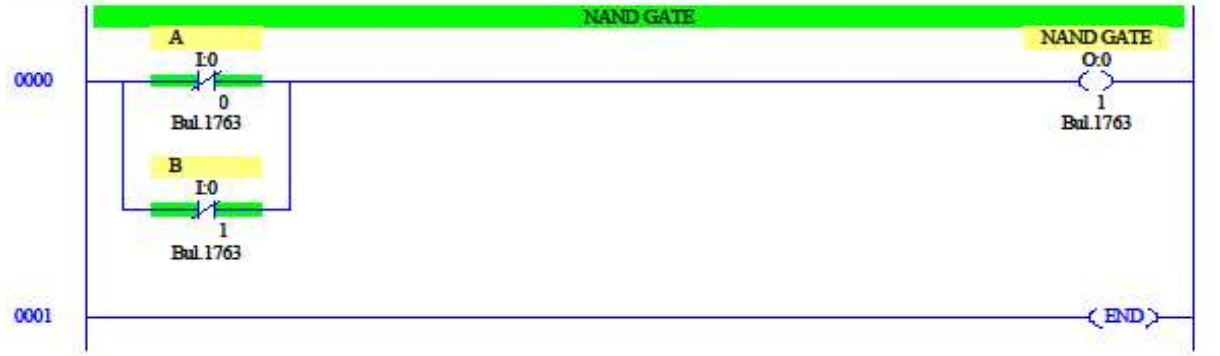

OR GATE

LAD 2 - --- Total Rungs in File = 2



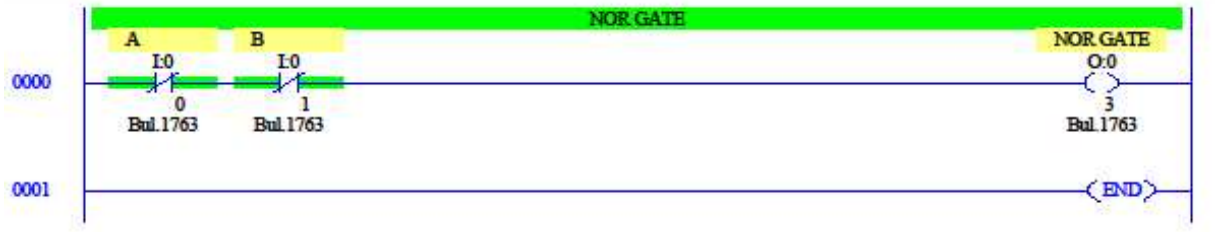

NAND GATE

LAD 2 - --- Total Rungs in File = 2



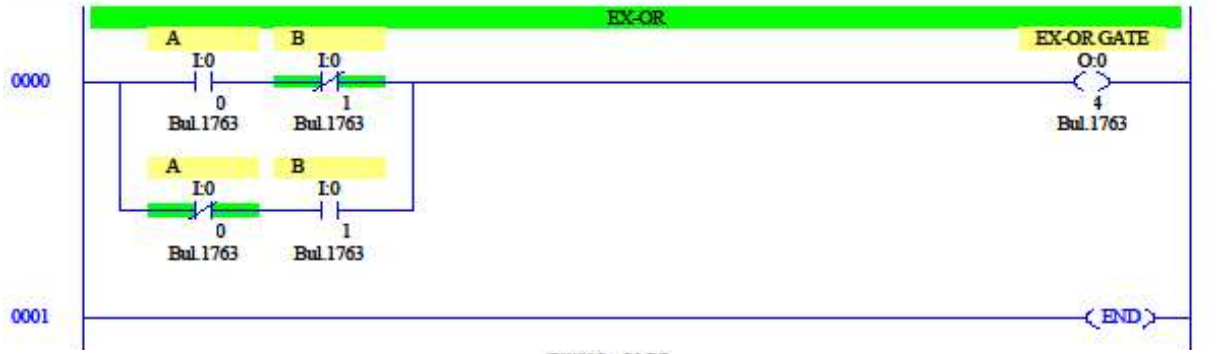

NOR GATE

LAD 2 - --- Total Rungs in File = 2



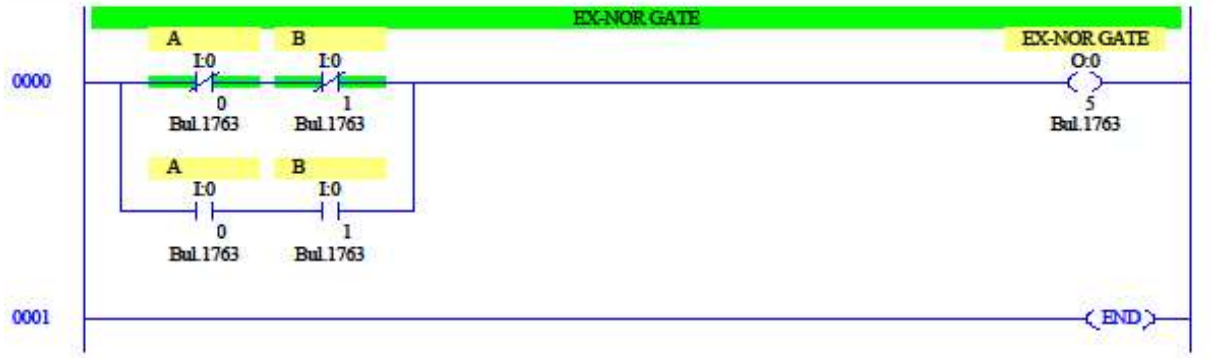
EXOR GATE

LAD 2 - --- Total Rungs in File = 2



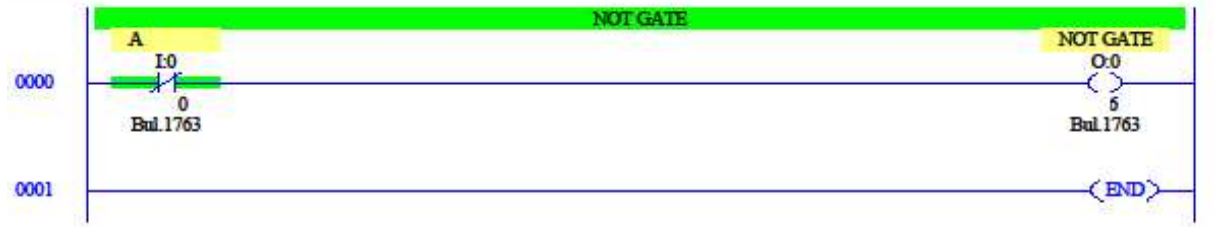

EXNOR GATE

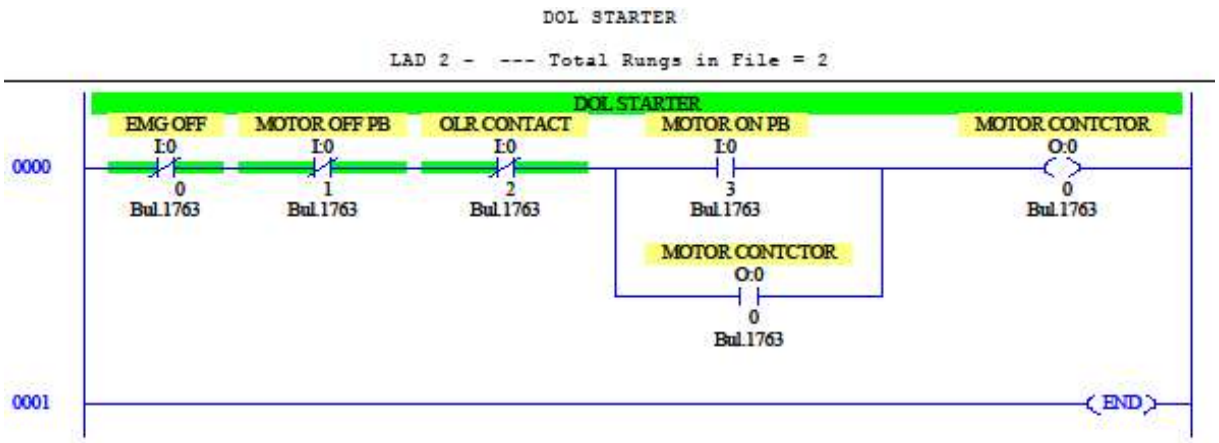
LAD 2 - --- Total Rungs in File = 2




NOT GATE

LAD 2 - --- Total Rungs in File = 2






**Precautions:** Students must use proper type and range of the meters. They must show the wiring connections before switching the supply on.

**Conclusion/Critical Observation:** Students learn the following

1. Basic Components in Electrical Panel used.
2. Opening of PLC Software
3. Basic Programming – Logic Gates / DOL Starters