Title: **Start and Stop with ESTOP Circuit** Hands-On: 1

Course: Intro to Automation Unit: Manual Motor Control CLO: 2

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Grade \_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**

1. Student shall create a motor control circuit based of the instructions below using the materials listed.
2. Student shall demonstrate their understanding of a basic motor control circuit.

**Assessment**

Students shall demonstrate a comprehension of the objectives listed above by scoring a minimum of 75% on this Hands-On. Grading shall be based on the Manual Motor Controls rubric.

**Materials**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Inputs | | | Outputs | | |
| Q | Input Device | Function | Q | Input Device | Function |
| 1 | Mushroom head PB | ESTOP | 1 | Green Pilot Light | Energized |
| 0 | 3P selector switch |  | 0 | Yellow Pilot Light |  |
| 0 | 2P selector switch |  | 1 | Red Pilot Light | De-energized |
| 1 | NC Pushbutton | STOP | 0 | Blue Pilot Light |  |
| 1 | Dual Pushbutton | START | 1 | Eight-pin relay | CR1 |
|  |  | | 0 | Eleven-pin relay |  |

**Instructions**

Design a start/stop control circuit using the two momentary pushbuttons listed above. The circuit will also utilize a latching mushroom head pushbutton to act as an “ESTOP”. Whenever the circuit is “energized”, the green light shall illuminate, and the red light shall be off. When the circuit is “de-energized”, the green light shall be off, and the red light shall illuminate. If the ESTOP is pressed, both lights shall be off. Use the space below to design the circuit. Once complete, you may review the design with the instructor, but this step is not necessary. Instructor help shall result in point deductions based on the Manual Motor Control rubric. Once circuit is wired, have the instructor review the wiring. This shall begin the grading process. Any issues found shall be a point deduction based on the rubric. If wiring is correct, test the circuit with the instructor present. Render the schematic using a CAD type software package. Post the schematic to your *student share* folder using filename *MMC Hands-On 1 –name.ext.*

**Diagram**

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Discussed design \_\_\_\_\_\_\_\_ Checked wiring \_\_\_\_\_\_\_\_ Energized Test \_\_\_\_\_\_\_\_