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| Name |  | Station | |  | Date | |  | | |
| Filename | Intro to Automation Final *[name]*.vsdx | | Location | | | U:\Electrical\*First\_Lastname* | | | |
| Objective | | | | | | | | | |
| Design a motor control circuit that controls a three phase motor. This job is to be done on the patch-panel station and the PLC panel. The entire control circuit shall be done in 24VDC. A normally open pushbutton shall start the motor and the normally closed pushbutton shall stop the motor. The motor shall run for only 10 seconds, then shut off. To restart the motor, press the normally open pushbutton again. Additionally, use the three position selector switch to give the operator the ability to place the circuit in *Hand* (controlled by patch panel pushbuttons), *Off* (stop motor, no input control), or *Auto* (controlled by PLC). Ensure that the overloads are a part of both control circuits. On both the patch panel and the PLC panel illuminate the green light when the motor is running and the red light when the motor is off. Lights should indicate motor status on both panels regardless of where the HOA switch is located. When the motor has an overload condition, the yellow light shall illuminate. When the Hand-Off-Auto (HOA) selector switch is in the *Hand* position, the pushbuttons on the patch panel shall control your three phase motor. When the Hand-Off-Auto selector switch is in the *Auto* position, the pushbuttons wired to your PLC on your personal panel shall be used to control the three phase motor. Lights on the personal PLC panel shall operate the same as that on the patch panel. | | | | | | | | | |
| Job Instructions | | | | | | | | | |
| * Draw your design on the graph provided. (No use of PCs at this time) * Draw your design of your PLC ladder logic on graph paper. * Discuss your hand drawn designs with your instructor. * Obtain approval from your instructor to start wiring.(**Station must be locked out**) * Have your instructor review your wiring to ensure all is correct. * Get instructor approval to wire the motor, if applicable. .(**Station must be locked out**) * After connecting the motor, have you instructor look over your motor wiring. * Have instructor test final system and receive a grade. * Instructor add a “problem” into the circuit. Start Time \_\_\_\_\_\_\_\_\_\_ Finished Time \_\_\_\_\_\_\_\_\_ * Render your hand drawing of your schematic in Visio. * Save Visio file using naming convention and location listed above. | | | | | | | | | |
| Grading Rubric | | | | | | | | | |
| Classification | | | | | | | | Points | Score |
| Hand drawing | | | | | | | | 15 |  |
| Schematic Design | | | | | | | | 10 |  |
| Program Design | | | | | | | | 10 |  |
| Proper Use of Lock-Out-Tag-Out | | | | | | | | 20 |  |
| Wiring | | | | | | | | 10 |  |
| Circuit Operation | | | | | | | | 10 |  |
| Program Operation | | | | | | | | 10 |  |
| Visio Rendering | | | | | | | | 10 |  |
| File naming and storage | | | | | | | | 5 |  |

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