Multi-State
Advanced Manufacturing
Consortium

MSAMC Master Performance Based Objectives (PBO) Review Template

Instructions

The following tab lists PBOs for the topic area **PLC 5**. Please review each of the PBOs, and rate each PBO with one of the following ratings:

1 = Skill or understanding is required for employees.

2 = Skill is useful, but is not crucial for employees.

3 = Skill is not useful for employees, or isn't relevant for typical work assignments.

0 = PBO is unclear.

Additionally, for each PBO, note any comments or recommendations that you may have about how to improve the PBO. If any PBOs or skill sets seem to be missing from the list, please add them in the space at the bottom of the list.

Please enter your information below

Name:	
Company/Plant:	
Department/Division:	
Industry/Segment:	
Email:	
Phone:	

PLC 5

M-S AMC Industry Partner PBO Review

Please review the following PBOs to identify the appropriate skill set for a given job title / category / classification (see row 10 below).
   * In the "**Importance**" column, identify how important each PBO is for someone in the relevant position. For each PBO, type 1 if the PBO must be covered in the coursework, enter 2 if the PBO is helpful but not necessary and would not impair the performance of the employee in the workplace if missed, and enter 3 if the PBO would not benefit the student or doesn't apply to the typical work assignments. If you don't understand the PBO, enter 0.

   * Note any comments or feedback for improving each PBO (in the "Comments" column).
Note: It is the intention of competency based instruction to have each student individually demonstrate their proficiency of the skills indicated.

Reviewing PBOs fc *TYPE JOB TITLE HERE* (from whose perspective are you rating PBO importance?)

Sub-Topic	Level	Topic	PBO ID	Performance Based Objective (PBO)	Importance 1 = Need 2 = nice to have 3 = N/A 0= Don't understand	Comments *Notes to improve the PBO, PBO is unclear, etc.*
	1	PLC	1	1) Match the features of the following hardware to a given list. (Written exercise) - PLC-5 Processor module - Input module - Output module - Chassis -Power supply - Remote I/O Adapter	*Enter 1, 2, 3, or 0 here*	
	1	PLC	2	Interpret the PLC-5 Processor module diagnostic indicators, identifying the corrective action to be taken if a fault is indicated. (Written exercise-using PLC-5 reference Guide)		
	1	PLC	3	Using RSLinx software, setup the proper driver necessary to allow the PC to communicate the PLC-5 Processor module.		
	1	PLC	4	Using the "Who is active" communications tool, select a PLC-5 processor and initiate online communications.		
	1	PLC	5	Download and Upload Programs to/from a PLC 5 Processor module.		
	1	PLC	6	Create and save simple PLC programs (Simple Start (N.O.-PB) - stop circuit (N/C-PB) using storage bit- and one output lamp.		
	1	PLC	7	Apply and enable forces, remove and disable forces.		
	1	PLC	8	Perform minor edits to the ladder logic to include relay, timer and counter instructions.		
	1	PLC	9	Given drawings of a Field Wiring Arm and the specification sheets for a sinking input module, a sourcing input module and an output module, draw the wiring to show the proper connections for these modules to real world I/O. (All jumpers on the Field Wiring Arm must be shown) (Written exercise)		
	1	PLC	10	Add storage bits and cross-reference their location throughout the program, toggle output bits on & off. Add software jumpers & rung output blocker bits.		
	1	PLC	11	Demonstrate the ability to access the data tables and interpret the information in the following areas – Input &output image tables, Timer, Binary, Counter, and Integer areas.		

PLC Level 1	1	PLC	12	Switch the displayed radix while viewing data table areas.		
	1	PLC	13	Print-out ladder diagrams and cross-reference lists.		
	1	PLC	14	Search a ladder diagram by address and instruction type. (Using "Search Next", "Search Previous", and "Find All").		
	1	PLC	15	Add symbol and rung comments to a ladder diagram.		
	1	PLC	16	Change the processor's mode of operation.		
	1	PLC	17	Demonstrate the ability to access the cross-reference list.		
	1	PLC	18	Using the PLC 5 quick reference, identify all indicators on a PLC 5/25, determine whether the indicator represents normal or a faulted condition and identify the recommended recovery action for each possible condition. (Written Exercise)		
	1	PLC	19	Using the PLC 5 quick reference, identify all indicators on a 1771 remote adapter module, determine whether the indicator represents normal or a faulted condition and identify the recommended recovery action for each possible condition.		
	1	PLC	20	Using the PLC 5 quick reference, identify the switch settings for normal operation on the processor (scanner mode), I/O adaptor module and backplanes. (When given the station number, rack number, starting module group number and the type of modules being used in the system and other engineering data)		
	1	PLC	21	Construct a simple clamp and drill circuit, program and debug. This will be completed on pneumatic actuated lab stations. (Note the program will be given to the students with one logic error in the program. The students are to debug the program. The circuit will demonstrate anti-tie down and pinch point control)		
	1	PLC	22	Given a ladder listing and input conditions, predict the output status. This ladder listing will include the following instruction types: (Lab exercise)XIC, XIO, OTE, OTL, OUT, TON, TOF, RTO, CTU, CTD, RES, MOV, EQU, GEQ, GRT, LEQ, LES, LIM, MEQ, NEQ, SQO, JMP, LBL, JSR, MCR, ONS		
	1	PLC	23	Identify what appears to be program anomalies when the program is running with Program Control Instructions (i.e. MCR, JMP, LBL)		
	1	PLC	24	Load a bit pattern into the Binary data table and control real world outputs with this bit pattern using Move and Sequencer (SQO) instructions.		
	1	PLC	25	While viewing the ladder listing of an operating program, search for the output that the simulated machine is waiting for and identify the inhibitors to machine operation. Trace these inhibitors back to real world inputs.		

	1	PLC	26	Given an Operator complaint, machine condition, the RXlogix5 display of highlighted logic, input and output module indicator status, and the input sensor light status, (additional option - voltage measurements that would be measured in the control panel), predict the failed component(s) and identify additional troubleshooting actions that could be taken to further isolate the fault. (Written exercise)	
PLC Level 2	2	PLC	27	Given a ladder listing and input conditions, predict the output status. This ladder listing will include the following instruction types:CPT, CMP, MVM, FAL, FBC, FIFO, LIFO, BTW, BTR, MSG, PID **(Note: local industry will have to review these instructions for applicability)**	
	2	PLC	28	Install and configure an Analog Input module. Write a program to use the inputs. Interpret the module's Led status.	
	2	PLC	29	Install and configure an Analog Output module. Write a program to control the outputs. Interpret the module's Led status.	
	2	PLC	31	Create a trend chart, and use chart to monitor a running program's data.	
	2	PLC	32	Create Custom Data Monitor (CDM).	
	2	PLC	33	Using a plant program, enter page titles and demonstrate the use of Advanced Diagnostics to search for specific ladder logic indicated by the page titles.	
	2	PLC	34	Practice troubleshooting techniques on training simulator with instructor induced faults.	
	2	PLC	35	Given copies of local plant prints, ladder listings, and a cross reference listing, devise rung comments that explain the operation of selected logic rungs.(Written exercise – may use the PLC-5 Quick Reference Guide)	
	2	PLC	36	Given copies of local plant prints, identify all disconnects, fuses, transformers, circuit breakers, and power supplies associated with the power distribution for the PLC and I/O circuits and denote the panel that houses these components. (Written Exercise)	
	2	PLC	37	Given the I/O wiring Diagrams and/or cross-reference listing, identify the PLC address associated with selected inputs and outputs to facilitate program logic searching should the logic be insufficiently documented. (Written Exercise)	

Additions: Please add any additional objectives that we may have overlooked.