



Performance Based Objectives – Integrated Systems*

PBO No.	Performance Based Objective
ISYS-1	Identify, by physical examination, the sequence of operations of each station of the integrated system.
ISYS-2	Identify the type of technology associated with each action on the integrated systems trainer. (e.g. electrical, pneumatic, etc.)
ISYS-3	Identify each output associated with every step in the sequence of operation on each station on the integrated systems trainer.
ISYS-4	Generate a list of most probable triggering elements associated with each step in the sequence on each station on the integrated systems trainer.
ISYS-14	Given a selected part on the drawings (prints), locate the part on the integrated system.
ISYS-15	Given a part on the integrated system, locate the part on the drawings (prints).
ISYS-5	Compare the PLC inputs and outputs associated with each real world input and output with the working drawings of the integrated systems trainer.
ISYS-6	Generate a Sequence diagram of each station on the trainer reflecting: The step, timing, output actuating, and most probable triggers causing the action.
ISYS-7	Given the Status of an operator's complaint, all I/O indicators (including blown fuse indicators) and the processor logic, identify a faulted part. Given a copy of the logic as it would appear on a programming terminal, and a drawing depicting the physical layout of the machine with all indicators reflecting the state of the machine and processor status indications.
ISYS-8	Given the Status of an operator's complaint, all I/O Indicators and a sequence Diagram with outputs and triggers identified, Identify the most likely faulted Item(s). Given a drawing depicting the physical layout of the machine with all indicators reflecting the state of the machine and processor status indications.
ISYS-9	Isolate a fault on the integrated system trainer as to the input that is expected/output that is expected for the paused sequence of operation.
ISYS-10	Use the internet to supplement their understanding with unfamiliar technology as it relates to components on the integrated system trainer.
ISYS-11	Generate a flow chart (or List of actions) that reflect the troubleshooting logic used on sequencing machines.
ISYS-12	List the part flow and process flow of the integrated systems trainer.
ISYS-13	Match the following LANS with an example of their function: <ul style="list-style-type: none"> - Robot and Tooling LAN – Local I/O and Remote I/O (includes names of DeviceNet and ProfiBus) - PLC to PLC LAN - Program Back-up—and- Data Collection LAN - F.I.S. LAN (Factory Information Systems) - Work Scheduling LAN (includes Just in time, etc.)
ISYS-16	Generate a flow chart of a standardized procedure for troubleshooting sequencing machines.

This PBO list was developed in alignment with the AMTEC Integrated Manufacturing Systems (AIMS) Simulator.

Delivering these PBOs requires the use of the AIMS Simulator, or a Simulator with equivalent functionality.





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- * This is an introductory course for students that have no background in this technology and is meant to set the context for all further courses.
- * The troubleshooting that takes place in this course does not utilize the plc logic but represents 85% of the typical floor issues. Such as Part -in-Place, loose limit switches, etc.
- * Integrated Systems Level 2 will be instructed after completing the Electrical, Fluid Power, Controls, PLC and Robot Courses. This course will use the capability of the PLC, Robot and HMI to facilitate Troubleshooting

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