



**NIDA CORPORATION
COMPUTER ASSISTED INSTRUCTION**

LESSON AND OBJECTIVE LISTING

**Master Course Listing
PLCs**

2018-08-30

OBJECTIVE LISTING - Master Course Listing

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MODEL 5050

MOD 44 - PROGRAMMABLE LOGIC CONTROLLERS 1

Representative



Technology Education Concepts

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OBJECTIVE LISTING - Master Course Listing

LESSON ID/TITLE

CARDS/KITS

MOD 44 - PROGRAMMABLE LOGIC CONTROLLERS

5142-612-130 Introduction to Programmable Logic Controllers	1
<ul style="list-style-type: none"> ▪ Recognize a basic PLC block diagram. ▪ Identify basic PLC functions. ▪ Identify PLC principles of operation. ▪ Recognize and understand a simple ladder logic diagram. ▪ Recognize the symbols used in a basic ladder logic diagram. ▫ Use the PLC trainer to control LEDs. ▫ Use the PLC trainer to control the motor. ▫ Understand how the PLC's operation changes by changing the ladder logic programs. 	
5142-612-160 PLC Trainer Familiarization	1
<ul style="list-style-type: none"> ▪ Identify the power requirements for the Nida Model 5050 PLC trainer. ▪ Recognize trainer controls, switches, and indicating devices. ▫ Identify an experiment card. ▫ Describe insertion and removal procedures. ▫ Perform procedures to start an experiment. ▫ Insert and remove an experiment card. ▫ Perform procedures to end an experiment. 	
5142-612-190 PLC Hardware	1
<ul style="list-style-type: none"> ▪ Understand the functions of I/O modules. ▪ Identify the different types of I/O modules. ▪ Know the basic operation of both discrete and analog I/O modules. ▪ Know the function of the processor module's microprocessor (CPU). ▪ Describe a memory map and the different memory functions. ▪ Know the purpose of the communications circuitry. ▪ Understand the scan cycle. ▫ Use an analog I/O module for analog input and output devices. ▫ Use an analog I/O module for an analog input device with a relay I/O module for an LED output. ▫ Observe the processor module's operation using the scan cycle. 	
5142-612-220 PLC Programming	1
<ul style="list-style-type: none"> ▪ Understand the arrangement of input instructions for AND and OR operations. ▪ Identify different input instructions. ▪ Identify different output instructions. ▪ Use a four step process to develop an organized programming strategy. ▪ Identify the correct ladder logic program for a specified process. ▫ Use a four step process to develop an organized programming strategy. ▫ Identify the correct ladder logic program for a specified process. 	
5142-612-250 PLC Troubleshooting	1, 2
<ul style="list-style-type: none"> ▪ Use a four step process to develop an organized troubleshooting strategy. ▪ Identify areas of a PLC controlled system most likely to fail. ▪ Identify areas of a PLC controlled system least likely to fail. ▫ Observe and understand the normal operation of a PLC controlled system. ▫ Recognize a faulty PLC controlled system. ▫ Identify the possible causes of the fault. 	
5142-614-160 RSLogix Familiarization	---
<ul style="list-style-type: none"> ▫ Understand the different file types associated with the PLC. ▫ Recognize the importance of proper configuration settings. 	

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MOD 44 - PROGRAMMABLE LOGIC CONTROLLERS (cont.)

5142-614-160 RSLogix Familiarization (cont.)	1
<ul style="list-style-type: none"> ▪ Understand the process for creating ladder programs. ▪ Develop an understanding of commands used for ladder program development. ▪ Identify the different modes of operation of the PLC. ▪ Understand the usage of each processor mode. ▪ Understand the steps required to transfer a file to and from the PLC. 	
5142-614-190 Bit Instructions	1
<ul style="list-style-type: none"> ▪ Understand the concepts of bit instructions. ▪ Describe the operation of bit instructions. ▫ Demonstrate the usage of bit instructions with Rockwell RSLogix software. 	
5142-614-220 Timer and Counter Instructions	1
<ul style="list-style-type: none"> ▪ Understand the concepts of timer instructions. ▪ Describe the operation of timer instructions. ▪ Understand the concepts of counter instructions. ▪ Describe the operation of counter instructions. ▫ Demonstrate the usage of timer and counter instructions using Rockwell RSLogix software. 	
5142-614-250 I/O and Interrupt Instructions	1
<ul style="list-style-type: none"> ▪ Understand the concepts of I/O instructions. ▪ Describe the operation of I/O instructions. ▪ Understand the concepts of interrupt instructions. ▪ Describe the operation of interrupt instructions. ▫ Demonstrate the usage of I/O instructions using Rockwell RSLogix software. 	
5142-614-280 Comparison Instructions	1
<ul style="list-style-type: none"> ▪ Understand the concepts of comparison instructions. ▪ Describe the operation of comparison instructions. ▫ Demonstrate the usage of comparison instructions using Rockwell RSLogix software. 	
5142-614-310 Math Instructions	1
<ul style="list-style-type: none"> ▪ Understand the concepts of math instructions. ▪ Describe the operation of math instructions. ▫ Demonstrate the usage of math instructions using Rockwell RSLogix software. 	
5142-614-340 Move and Logical Instructions	1
<ul style="list-style-type: none"> ▪ Understand the concepts of move instructions. ▪ Describe the operation of move instructions. ▪ Understand the concepts of logic instructions. ▪ Describe the operation of logic instructions. ▫ Demonstrate the usage of move and logic instructions using Rockwell RSLogix software. 	
5142-614-370 File Instructions	1
<ul style="list-style-type: none"> ▪ Understand the concepts of file instructions. ▪ Describe the operation of file instructions. ▫ Demonstrate the usage of file instructions using Rockwell RSLogix software. 	
5142-614-400 Bit Shift, FIFO, and LIFO Instructions	1
<ul style="list-style-type: none"> ▪ Understand the concepts of bit shift, FIFO, and LIFO instructions. ▪ Describe the operation of bit shift, FIFO, and LIFO instructions. ▫ Demonstrate the usage of bit shift instructions using Rockwell RSLogix software. 	
5142-614-430 Sequencer Instructions	1
<ul style="list-style-type: none"> ▪ Understand the concepts of the sequencer instructions. ▪ Describe the operation of the sequencer instructions. 	

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MOD 44 - PROGRAMMABLE LOGIC CONTROLLERS (cont.)

5142-614-430 Sequencer Instructions (cont.)	
▫ Demonstrate the usage of sequencer instructions using Rockwell RSLogix software.	
5142-614-460 Control Instructions	1
▫ Understand the concepts of the control instructions.	
▫ Describe the operation of the control instructions.	
▫ Demonstrate the usage of control instructions using Rockwell RSLogix software.	
5142-614-160 RSLogix Familiarization	---
▫ Understand the different file types associated with the PLC.	
▫ Recognize the importance of proper configuration settings.	
▫ Understand the process for creating ladder programs.	
▫ Develop an understanding of commands used for ladder program development.	
▫ Identify the different modes of operation of the PLC.	
▫ Understand the usage of each processor mode.	
▫ Understand the steps required to transfer a file to and from the PLC.	
5142-614-190 Bit Instructions	1
▫ Understand the concepts of bit instructions.	
▫ Describe the operation of bit instructions.	
▫ Demonstrate the usage of bit instructions with Rockwell RSLogix software.	
5142-614-220 Timer and Counter Instructions	1
▫ Understand the concepts of timer instructions.	
▫ Describe the operation of timer instructions.	
▫ Understand the concepts of counter instructions.	
▫ Describe the operation of counter instructions.	
▫ Demonstrate the usage of timer and counter instructions using Rockwell RSLogix software.	
5142-614-250 I/O and Interrupt Instructions	1
▫ Understand the concepts of I/O instructions.	
▫ Describe the operation of I/O instructions.	
▫ Understand the concepts of interrupt instructions.	
▫ Describe the operation of interrupt instructions.	
▫ Demonstrate the usage of I/O instructions using Rockwell RSLogix software.	
5142-614-280 Comparison Instructions	1
▫ Understand the concepts of comparison instructions.	
▫ Describe the operation of comparison instructions.	
▫ Demonstrate the usage of comparison instructions using Rockwell RSLogix software.	
5142-614-310 Math Instructions	1
▫ Understand the concepts of math instructions.	
▫ Describe the operation of math instructions.	
▫ Demonstrate the usage of math instructions using Rockwell RSLogix software.	
5142-614-340 Move and Logical Instructions	1
▫ Understand the concepts of move instructions.	
▫ Describe the operation of move instructions.	
▫ Understand the concepts of logic instructions.	
▫ Describe the operation of logic instructions.	
▫ Demonstrate the usage of move and logic instructions using Rockwell RSLogix software.	
5142-614-370 File Instructions	1
▫ Understand the concepts of file instructions.	
▫ Describe the operation of file instructions.	

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LESSON ID/TITLE	CARDS/KITS
<u>MOD 44 - PROGRAMMABLE LOGIC CONTROLLERS (cont.)</u>	
5142-614-370 File Instructions (cont.)	
▫ Demonstrate the usage of file instructions using Rockwell RSLogix software.	
5142-614-400 Bit Shift, FIFO, and LIFO Instructions	1
▫ Understand the concepts of bit shift, FIFO, and LIFO instructions.	
▫ Describe the operation of bit shift, FIFO, and LIFO instructions.	
▫ Demonstrate the usage of bit shift instructions using Rockwell RSLogix software.	
5142-614-430 Sequencer Instructions	1
▫ Understand the concepts of the sequencer instructions.	
▫ Describe the operation of the sequencer instructions.	
▫ Demonstrate the usage of sequencer instructions using Rockwell RSLogix software.	
5142-614-460 Control Instructions	1
▫ Understand the concepts of the control instructions.	
▫ Describe the operation of the control instructions.	
▫ Demonstrate the usage of control instructions using Rockwell RSLogix software.	

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