Northwest State Community College  
Course Information Sheet

# Course Information

Title: PLC 1C

Course Number: PLC 128

Credit Hours: 1

Pre-requisite: PLC127

# Description

The course is a study of the installation, programming, and troubleshooting of programmable controlled systems currently used in an industrial environment. The focus will be on installation, programming, engineering, and maintenance tasks performed with PLC systems. The primary PLC used for this class will be the Allen Bradley SLC-500 and CompactLogix, using RSLogix 500, RSLogix5000, and RSLinx software. The topics presented will be learned through online instructional material and hands-on labs.

# Learning Outcomes

Upon completion of this course the students will be able to:

1. Construct an Allen Bradley CompactLogix system
2. Troubleshoot an Allen Bradley CompactLogix system
3. Interpret Allen Bradley PLC hardware addressing & block transfer instructions

# Required Material

**Text:**

Intro to ControlLogix Programmable Automation Controller, Gary Dunning, 2nd Edition; Publisher Delmar Cengage Learning, ISBN-10: 1-111-53929-4

**Supplies:**

VOM

Screw drivers (Phillips, straight blade)

Wire strippers

# Module 1: AB CompactLogix: Data Types, Timer & Counter Instructions

The module will focus on how Allen Bradley CompactLogix timer and counter instructions function in a PLC program.  Timer and Counter status bit operation will be reviewed, as well as basic data formats.

Upon completion of this module the student will be able to:

1. Determine what the time base is for a timer instruction in a CompactLogix processor.
2. Predict the operation of a CompactLogix program that uses a TON & TOF together.
3. Explain when a TOF instruction starts timing when the processor is in Run mode.
4. Determine the data type for a timer status bit.
5. Calculate the delay time of a timer instruction, by viewing the values in the instruction.
6. . Explain how the status bits operate when a TON instruction is true, and when it is false.
7. Explain how the status bits operate when a TOF instruction is true, and when it is false.
8. Interpret the information in RSLinx for an Ethernet, and an Ethernet IP driver, while viewing in RSWho.

### Module 1 Activities

Top of Form

 Read Intro to ControlLogix PAC - Chapter 12: ControlLogix Timer Instructions, Pages 309-325

Text Book

 Read Intro to ControlLogix PAC - Chapter 14: ControlLogix Counter Instructions, Pages 350-368

Text Book

 Read Intro to ControlLogix PAC - Chapter 18: Configuring the Ethernet IP Address for a CompactLogix 1769-L32E, Pages 592-599

Text Book

 Watch video: RSLinx Ethernet Drivers (3:39)

<https://www.youtube.com/watch?v=bFAmk_tK8sk>

 Watch video: Interpreting RSLinx Drivers for CompactLogix Communications (3:08)

<https://www.youtube.com/watch?v=4-psaRB9jm0>

 Complete Quiz 128-1

See Quiz PLC128-1 Content Packaging files to upload into an LMS System

 Review Hands-on lab 128-1.1, Lab 128-1.2, Lab 128-1.3, and Lab 128-1.4

See Lab Documents

 Schedule and complete Hands-on Lab 128-1.1

See PLC128 1.1 Lab Document

 Schedule and complete Hands-on Lab 128-1.2

See PLC128 1.2 Lab Document

 Schedule and complete Hands-on Lab 128-1.3

See PLC128 1.3 Lab Document

Bottom of Form

# Module 2: Specialized Allen Bradley Instructions & Equipment

In Module 2, we will focus on other AB hardware and software, such as the SLC-500 sequencer output instruction and the Allen Bradley PLC-5 processor and block transfer modules.

Upon completion of this module the student will be able to:

1. Create a One-Dimensional Array.
2. Create a Two-Dimensional Array.
3. Create an array.
4. Create a Counter Array.
5. Create a Three-Dimensional Array

### Module 2 Activities

Top of Form

 Read SLC-500 Instruction Set Manual - Chapter 7: Sequencer instructions, pages 7-5 to 7-12

Text Book

 Read Intro to ControlLogix PAC - Chapter 9: Creating and Monitoring RSLogix 5000 Tags, Introduction to Arrays, pages 245-249

Text Book

 Watch video: SLC-500 Sequencer Output Instruction (5:12)

<https://www.youtube.com/watch?v=ijsXGyNk0Ps>

 Watch video: SLC-500 Memory Maps, Copy, and Reports (15:05)

<https://www.youtube.com/watch?v=NiPzi9eaWpU>

 Complete Quiz 128-2

See Quiz PLC128-2 Content Packaging files to upload into an LMS System

 Review Hands-on lab 128-2.1

See Lab Documents

 Schedule and complete Hands-on Lab 128-2.1

See PLC128 2.1 Lab Document

Bottom of Form

******

**DOL DISCLAIMER:**

**“This workforce product was funded by a grant awarded by the U.S. Department of Labor’s Employment and Training Administration. The product was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The U.S. Department of Labor makes no guarantees, warranties, or assurances of**

**any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership. This product is copyrighted by the institution that created it.”**

 This work is licensed under a [Creative Commons Attribution 4.0 International License.](http://creativecommons.org/licenses/by/4.0/)