



**Industrial Systems Technology**  
**Credential: Certificate in Programmable Logic**  
**Controllers (PLC)**  
**C5024030**

This curriculum will provide students with knowledge of PLC's and PLC applications. In addition, students will become proficient in the use of PLC software, hardware, maintenance and troubleshooting, and programming. Upon completion, students will have the flexibility of pursuing a Diploma or an Associate in Applied Science Degree in Industrial Systems Technology.

Program Length: 2 semesters

Career Pathway Options: Associate in Applied Science in Industrial Systems Technology (Higher entrance standards required); Diploma in Industrial Systems Technology (Higher entrance standards required); Certificate in Programmable Logic Controllers

Program Sites: Lee Campus - Evening Program

Course Requirements for Programmable Logic Controller Certificate  
 A. Required Subject Area Courses (5 SHC) C-L-SHC  
 ELC 112 DC/AC Electricity 3-6-5

B. Other Major Hours Required for Graduation (11 SHC)  
 ELC 128 Introduction to PLC 2-3-3  
 ELC 228 PLC Applications 2-6-4  
 ELN 229 Industrial Electronics 2-4-4

Total Semester Hours Credit required for graduation: 16

Semester Curriculum for Programmable Logic Controller Certificate  
 1st Semester (Fall) C-L-SHC  
 ELC 112 DC/AC Electricity 3-6-5  
 ELC 128 Introduction to PLC 2-3-3  
 5-9-8

2nd Semester (Spring)  
 ELC 228 PLC Applications 2-6-4  
 ELN 229 Industrial Electronics 2-4-4  
 4-10-8

Total Semester Hours Credit: 16

**COURSE DESCRIPTIONS**

**ELC 112 DC/AC Electricity** 3-6-5  
 This course introduces the fundamental concepts of and computations related to DC/AC electricity. Emphasis is placed on DC/AC circuits, components, operation of test equipment; and other related topics. Upon completion, students should be able to construct, verify, and analyze simple DC/AC circuits.

**ELC 128 Introduction to PLC** 2-3-3  
 This course introduces the programmable logic controller (PLC) and its associated applications. Topics include ladder logic diagrams, input/output modules, power supplies, surge protection, selection/installation of controllers, and interfacing of controllers with equipment. Upon completion, students should be able to install PLCs and create simple programs.

**ELC 228 PLC Applications** 2-6-4  
*Prerequisites: ELC 128*  
 This course continues the study of the programming and applications of programmable logic controllers. Emphasis is placed on advanced programming, networking, advanced I/O modules, reading and interpreting error codes, and troubleshooting. Upon completion, students should be able to program and troubleshoot programmable logic controllers.

**ELC 229 Applications Project** 1-3-2  
*Prerequisites: ELC 112, ELC 113, or ELC 140*  
 This course provides an individual and/or integrated team approach to a practical project as approved by the instructor. Topics include project selection and planning, implementation and testing, and a final presentation. Upon completion, students should be able to plan and implement an applications-oriented project.