Program Description:

The PLC Technician Certificate program provides a basic introduction to PLCs and is designed for people with little or no background in the area. The program’s curriculum provides a perfect way to get a quick start in the fundamentals of PLCs, incorporating traditional I/O based addressing which targets the Allen Bradley SLC 500 and RSLogix 500 hardware and software. The PLC simulation software, PLC Logix 500, integrated within the program emulates the Rockwell (Allen-Bradley) Logix 500 series PLC control software. This simulation software which includes over 250 pre-built lab projects and ten interactive 3D animations or “3DWorlds” which emulate a wide range of manufacturing and service applications including; Bottling Line, Batch Mixer, Stationary and Moving Car Washes, Elevator Door, Single and Dual Compressors, Silo/Hopper and Traffic Lights.

Program Outcomes:

1. Discuss the evolution, advantages and basic components of PLC systems.
2. Design, install, troubleshoot and maintain PLC systems according to industry standards and job specifications using PLCLogix 500 simulation software.
3. Identify and use/install the components required in a typical PLC system, including the Central Processing Unit (CPU), Input/Output (I/O), programming terminal, and software.
4. Analyze and solve routine technical problems related to PLC programming by applying fundamental concepts of computer programming, flowcharts and relay logic.
5. Describe, install and maintain peripheral hardware and software equipment and components related to industrial PLCs.
6. Interpret and produce PLC related ladder logic drawings, schematics and other related technical documents and graphics for a variety of stakeholders in compliance with industry standards.
7. Apply appropriate maintenance, installation, and troubleshooting techniques as well as perform test procedures on machines that are run by PLCs.
8. Design, modify, test and troubleshoot PLC ladder logic programs featuring timers, counters, and sequencers.
9. Analyze and troubleshoot PLC data transfer systems and commands including Registers, Files, Shift Registers and FIFO/LIFO instructions.
10. Describe, select and use applying appropriate PLC math instructions such as Add, Subtract, Multiply and Divide as well as Multiply, Divide, and data compare.
11. Identify the various components used in a typical process control system and describe how a PLC interfaces to this system.
12. Analyze and troubleshoot PLC data communication systems using various protocols and topologies including Data Highway +, Manufacturing Automation Protocol (MAP), Ethernet, and network switching.
13. Describe the various number systems and codes used in typical PLCs including binary, Octal, Hexadecimal and Binary Coded Decimal (BCD) systems.
14. Apply, analyze and troubleshoot a variety of digital logic devices and circuits such as logic gates, logic gate combinations, and logic design theorems including Boolean and DeMorgan.
15. Design control systems using industry standard Remote Terminal Units (RTUs) and Programmable Automation Controllers (PACs).
16. Describe the main components in an industrial automation system and explain the basic system operation.
Program Details:

The PLC Technician consists of 19 modules of interactive curriculum. The interactive PLCLogix 500 simulation software essentially converts your computer into a virtual PLC and allows you to run, verify and debug ladder logic programs based on the Rockwell RSLogix 500 format. PLCLogix 500 allows you to familiarize yourself with many different features associated with Rockwell PLCs, including timers, counters, sequencers and math functions. Tests are taken online using computer-based testing, using text, video, audio, 2D and 3D animations and laboratory simulation software.

The PLC Technician Certificate program prepares graduates of the program for employment and/or further on-the-job training as a PLC technician in the field of consumer, commercial and industrial electronics. As well, it will enable students to provide technical support and service during the production, installation, operation and repair of PLC equipment and systems.

### COMPULSORY COURSES (NINETEEN)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELNC 9071</td>
<td>Overview of PLCs</td>
</tr>
<tr>
<td>ELNC 9072</td>
<td>Central Processing Unit</td>
</tr>
<tr>
<td>ELNC 9073</td>
<td>I/O System</td>
</tr>
<tr>
<td>ELNC 9074</td>
<td>Programming Terminals and Peripherals</td>
</tr>
<tr>
<td>ELNC 9075</td>
<td>Installation and Maintenance of PLCs</td>
</tr>
<tr>
<td>ELNC 9076</td>
<td>Relay Logic</td>
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<tr>
<td>ELNC 9077</td>
<td>Ladder Logic</td>
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<tr>
<td>ELNC 9078</td>
<td>Timers</td>
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<tr>
<td>ELNC 9079</td>
<td>Counters</td>
</tr>
<tr>
<td>ELNC 9080</td>
<td>MCR, JUMP and FORCE Instructions</td>
</tr>
<tr>
<td>ELNC 9081</td>
<td>Sequencers</td>
</tr>
<tr>
<td>ELNC 9082</td>
<td>Data Transfer</td>
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<tr>
<td>ELNC 9083</td>
<td>Math Functions</td>
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<tr>
<td>ELNC 9084</td>
<td>Process Control</td>
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<tr>
<td>ELNC 9085</td>
<td>Data Communications</td>
</tr>
<tr>
<td>ELNC 9086</td>
<td>Number Systems and Codes</td>
</tr>
<tr>
<td>ELNC 9087</td>
<td>Digital Logic</td>
</tr>
<tr>
<td>ELNC 9120</td>
<td>RTUs and PACs</td>
</tr>
<tr>
<td>ELNC 9116</td>
<td>Introduction to Automation</td>
</tr>
</tbody>
</table>

Registration:

Courses are offered totally via distance and registration is offered through continuous intake, meaning registration is open 24 hours a day, 7 days a week throughout the year. You may enrol in this certificate program at any time (continuous intake) and complete each module in your own time.

Revised August 2018
Program Length:

Although there are no time limits, the average completion time for the entire certificate is 32 weeks of study, but individual completion times can vary depending on each student. Previous experience and education may reduce that time significantly.

Prerequisites:

You must have a secondary school diploma (with credits at or above the general level) or an approved equivalent or have mature student status.

We recommend that you complete the courses in the order shown below. However, the order in which you complete the course requirements is only restricted by course prerequisites.

Technical Requirement(s):

You must have access to a personal computer with the following minimum configuration:

- USB & Sound Card
- Intel Pentium or equivalent
- 512 MB RAM (1GB recommended)
- 250 MB available disk space
- Windows 7/Windows Vista/Windows 8/Windows 10
- 32 and 64 bit compatible
- Internet Access
- Email Account

Student Support:

We want our students to have the best possible experience while working through our programs. Full technical, tutorial and administrative support is available to students by phone and email. Our experienced Support Consultants can assist you with the installation of program material, solving content-based tutorial questions, submitting your online tests or answer registration questions.

And it doesn’t stop there. The online resources provide access to our online tutor, library of tutorial questions and supplemental learning material. The Online Discussion Forums provide our students with an online community to meet other students in the programs and discuss topics of mutual interest.

For support please call us, toll-free at, 1-866-279-1457, or email us at support@gbctechtraining.com. The Student Support Centre is open:

Monday - Friday
9:00 am to 10:00 pm (Eastern Standard Time).
Saturday
10:00 am to 5:00 pm (Eastern Standard Time).

https://youtu.be/lP8tYo5aPFM

Program Cost:

The total cost of the PLC Technician Certificate Program is $1700. There are two payment options.

Option 1 - Full Registration: $1700
Students register and pay for the complete program at initial registration.

Option 2 - Pay-As-You-Learn Registration

Revised August 2018
Initial registration is $440 (includes all learning materials, laboratory simulation software, user guides and access to the Module 1 exam) and registration for each of the remaining 18 modules is $70/module. Students may register for one or more modules at any time.

**Cost of Textbook (Optional): $190**

**Purchase the curriculum material on its own for $370**

If you would like to purchase the program material on its own and preview it before registering into the program, it is available at a cost of $370. If you later decide to register into the program, you still have the option to pay the tuition fees for one, some or all modules and earn a Certificate of Completion.

**Technical Training Certificate Refund Policy:**

If you want to withdraw from a module in any of our technical training programs, in order to receive a refund, you must officially withdraw. The withdraw letter should be received by the department not later or within 10 business days from the date the student receives the course materials. If you withdraw up to 10 business days after you receive the course materials, you will receive a full refund less 100% of the instructional USB drive fee cost. There is a $20.00 College Administration Charge per module. Students retain all non-refundable instructional materials supplied.

**Student Satisfaction:**

<table>
<thead>
<tr>
<th>2017-02-01 to 2018-07-26</th>
<th>% Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did you achieve, or will you have achieved upon completing your studies, the goals you had when you started this course or program?</td>
<td>93.33%</td>
</tr>
<tr>
<td>2. Would you recommend these studies to a friend?</td>
<td>90%</td>
</tr>
<tr>
<td>3. All things considered, were you satisfied with your studies with us?</td>
<td>87%</td>
</tr>
</tbody>
</table>

**Employment Sector:**

Based on the most relevant National Occupational Classification (NOC) code, graduates of this certificate might be employed as industrial engineering and manufacturing technologists and technicians. These professionals may work independently or provide technical support and services in the development of production methods, facilities and systems, and the planning, estimating, measuring and scheduling of work. They are employed by manufacturing and insurance companies, government departments, and establishments in other industries.

Source: National Occupational Classification System (Canada)

http://noc.esdc.gc.ca/English/NOC/SearchIndex.aspx?ver=16

2233 Industrial engineering and manufacturing technologists and technicians

Revised August 2018