Program Description:

Learn to design, install, and maintain electronic equipment used in modern industrial processes with our Automation Technician Certificate. Develop the skills needed to work with a wide range of control systems, from the simplest fuses and motors to sophisticated electronic computer interface boards, motor drives, programmable logic controllers (PLCs), solid-state devices and robotics. Gain an understanding of a wide range of applications through practical examples of automated manufacturing, including both the theory and function of digital and industrial electronics, hydraulics/pneumatics, robotic systems, programming languages and alarm management. Become familiar with distributed control systems (DCS) and supervisory control and data acquisition (SCADA) systems.

Program Outcomes:

1. Analyze and solve routine technical problems related to Automation engineering by applying fundamental concepts of mathematics and science.
2. Discuss the evolution of automation and describe the main components of industrial automation systems as they relate to manufacturing.
3. Describe and install the essential hardware and software equipment and components related to industrial automation applications.
4. Interpret and produce electrical, electronic, and mechanical drawings and other related technical documents and graphics for a variety of stakeholders in compliance with industry standards.
5. Fabricate, modify, test and troubleshoot industrial control devices, circuits, equipment and systems in accordance with job requirements, functional specifications and relevant standards in a simulated environment/using LogixSim software.
6. Troubleshoot motor and control circuits, using knowledge of microprocessors, programmable controllers, electronics, circuit analysis, mechanics, sensor or feedback systems.
7. Describe, assemble and install digital electronic equipment and make repairs such as replacement of defective circuit boards, sensors, controllers, encoders, and servomotors.
8. Analyze and interpret information obtained from analog and digital transducers.
9. Apply the procedures required to install, program, or repair process control equipment including on-off, proportional, integral, derivative, and PID control systems.
10. Describe the main components in a Distributed Control System (DCS) including task architecture, Local Area Networks, and Human Machine Interfaces.
11. Apply appropriate troubleshooting techniques and perform test procedures on SCADA systems including alarm management systems and SCADA security systems.
12. Describe the main components in a PLC system and explain the basic operation of its CPU and I/O system.
13. Design and program PLC ladder logic circuits using standard programming techniques.
14. Program, test, and debug PLC timer and counter circuits.
15. Explain the purpose of PLC data handling and math functions including FIFO, LIFO, scaling and ramping.
16. Discuss the evolution of industrial robots, including the development of actuators, manipulators, and end effectors.
17. Troubleshoot, maintain and modify robotic vision sound and tactile devices including frame grabbers, tactile sensors, speech recognition components, photogrammetry and 3D vision sensors.
18. Demonstrate proficiency in the use of computer software applicable to the robotics industry, specifically software such as RoboLogix. to program, debug, enter data, or process information as applicable to robotic equipment installation, maintenance and operation.
Program Details:

Our self-paced Distance Education Automation Technician program is designed for adult learners seeking independent study in the rapidly growing field of manufacturing technology. Created for those who cannot attend college on a part- or full-time basis due to other commitments such as work and family, this program has no post-secondary academic prerequisites and is open to anyone who wishes to obtain their Automation Technician certificate.

Featuring an interactive curriculum of text; video; 2D and 3D animations; audio clips, photos, and interactive lab simulations, the Automation Technician training program is divided into 18 modules. The modules include practical examples and instruction in using a wide range of required applications as well as covering both the theory and function of hydraulic and pneumatic systems; robotic systems; digital and industrial electronics; programming languages; and alarm management. The program also includes pre-tests, practice exams, interactive exercises, and online support. Final exams are written through our interactive online system.

<table>
<thead>
<tr>
<th>18 Course Modules</th>
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<tbody>
<tr>
<td>ELNC 9116</td>
<td>Introduction to Automation</td>
</tr>
<tr>
<td>ELNC 9053</td>
<td>Industrial Control Devices</td>
</tr>
<tr>
<td>ELNC 9117</td>
<td>Motors and Control Circuits</td>
</tr>
<tr>
<td>ELNC 9035</td>
<td>Digital Electronics</td>
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<tr>
<td>ELNC 9060</td>
<td>Analog and Digital Transducers</td>
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<tr>
<td>ELNC 9055</td>
<td>Industrial Process Control</td>
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<tr>
<td>ELNC 9118</td>
<td>Distributed Control Systems (DCS)</td>
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<tr>
<td>ELNC 9119</td>
<td>SCADA Systems</td>
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<tr>
<td>ELNC 9071</td>
<td>Introduction to PLCs</td>
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<tr>
<td>ELNC 9095</td>
<td>Ladder Logic Programming</td>
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<tr>
<td>ELNC 9078</td>
<td>PLC Timers</td>
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<tr>
<td>ELNC 9079</td>
<td>PLC Counters</td>
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<tr>
<td>ELNC 9097</td>
<td>PLC Data Handling</td>
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<tr>
<td>ELNC 9098</td>
<td>PLC Math Instructions</td>
</tr>
<tr>
<td>ELNC 9101</td>
<td>Introduction to Robotics</td>
</tr>
<tr>
<td>ELNC 9108</td>
<td>Robot Manipulators and End Effectors</td>
</tr>
<tr>
<td>ELNC 9112</td>
<td>Robot Vision, Touch, Sound</td>
</tr>
<tr>
<td>ELNC 9113</td>
<td>Robot Programming</td>
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</tbody>
</table>

Advanced Standing:

You can transfer credits earned through this certificate program to our Electromechanical Technician Certificate program, our Electronics Technician Certificate program, our Programmable Logic Controllers (PLC) I Technician Certificate program, our Programmable Logic Controllers (PLC) Technician II Certificate program and our Robotics Technician Certificate program.
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 and complete each module in your own time.

Program Length:

The average completion time is 32 weeks of study, but there are no time limits (previous electronics and/or robotics/automation 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. 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
- 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/IP8tYo5aPFM

Program Cost:

The total cost of the Automation Technician Certificate Program is $1780. There are two payment options.

Option 1 - Full Registration: $1780
Students register and pay for the complete program at initial registration.

Revised August 2018
Option 2 - Pay-As-You-Learn Registration
Initial registration is $560 (includes all learning materials, laboratory simulation software, user guides and access to the Module 1 exam) and registration for the remaining 18 modules which range from $60 to $90/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 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>Question</th>
<th>% Yes</th>
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<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>93.75%</td>
</tr>
<tr>
<td>2. Would you recommend these studies to a friend?</td>
<td>100%</td>
</tr>
<tr>
<td>3. All things considered, were you satisfied with your studies with us?</td>
<td>92%</td>
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</tbody>
</table>

Employment Sector:
Based on the most relevant National Occupational Classification (NOC) code, graduates of this certificate might be employed as Mechanical engineering technologists and technicians. These professionals provide technical support and services or may work independently in mechanical engineering fields such as the design, development, maintenance and testing of machines, components, tools, heating and ventilating systems, geothermal power plants, power generation and power conversion plants, manufacturing plants and equipment. They are employed by consulting engineering, manufacturing and processing companies, institutions and government departments.

Source: National Occupational Classification System (Canada)
http://noc.esdc.gc.ca/English/NOC/SearchIndex.aspx?ver=16
2232 Mechanical engineering technologists and technicians

Revised August 2018