

You are  
**never too old**  
to set another goal  
**or to**  
dream a new dream.

- C.S. Lewis



# SHORT-TERM TECHNICAL CERTIFICATES

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## CNC Operations Certificate (Short-Term Technical Certificate)

The Computer Numerical Control (CNC) Operations program focuses on the operation and setup of production CNC equipment. Students in this program will develop their skills in machining processes, including operation of the drill press, lathe, vertical and horizontal milling machine, surface grinder, CNC vertical machining center and turning center. Students learn the basics of transforming raw material into finished parts in a production environment.

### Career Outlook

Contact with several regional machine shops has indicated a strong desire to bring jobs back which had been outsourced. Additionally, area industries have both expressed need for and provided input on training content making up the CNC Operations certificate program.

### Program Learning Outcomes

1. Demonstrate the safe use of electric and manual hand tools.
2. Analyze technical data.
3. Set-up and operate manual machine tools including the mill, lathe, drill press, band saw, surface grinder and hand tools.
4. Set-up and operate CNC vertical milling machine.
5. Set-up and operate CNC metal machining lathe.
6. Interpret the 2D and 3D mechanical prints used in Machining.
7. Create a CNC program from a machine sequence pattern.
8. Weld various metals used in molds and fixtures.
9. Write part programs for CNC machine tools.
10. Demonstrate the ability to interpret and apply technical information from mechanical blueprints.
11. Measure machined parts with manual and automated measuring devices.

### First Semester

		<u>Credits</u>
+	IND 103 Applied Geometry & Trig .....	3
+	IND 132 Benchwork .....	2
+	RTI 121 Shop Graphics - Blueprint Reading	3
+	IND 140 Principles of Machining .....	3
+	IND 240 Machining Processes II .....	<u>3</u>
		14

### Second Semester

		<u>Credits</u>
+	IND 241 Tooling & Fixtures.....	3
+	MET222 Programming of Computer Numerical Control .....	3
+	WLD 110 Introduction to Applied Welding Tech .....	3
+	IND 250 CNC Operations Capstone Project ..	3
+	RTI 290 Special Topics .....	<u>2</u>
		14

### Total Program Hours

**28**

*Gainful employment information for NSCC's certificate programs can be found online at:  
<https://northweststate.edu/gedt/cnc-operations/>  
Gainful employment information includes: estimated cost of the program, average student loan debt and types of jobs available.*

- + Refers to technical course work. Students must maintain a minimum grade of "C" in these courses to progress in the program and graduate.

# CyberSecurity

## (Pending Short-Term Technical Certificate)

Cybersecurity is the next logical evolution for IT professionals. Specifically, the Ohio Attorney General launched the CyberOhio Initiative in 2016; two of the goals of CyberOhio are to provide cybersecurity training opportunities for Ohio businesses and to create collaborative opportunities for colleges to partner with businesses for internships.

<u>Course</u>	<u>Credits</u>
+ CYB190 Introduction to Programming.....	3
+ CIS194 IT Security.....	3
+ CIS195 Networking Essentials.....	3
+ CYB210 Cyber Programming.....	3
+ CYB220 Security Audits.....	3
+ CYB230 Network Security .....	3

### Career Outlook

The career outlook for cyber security is very good. There is currently 0% unemployment in the field. According to current reports and statistics, there will be 6 million cyber security jobs by 2019. There will be a shortage of trained workforce and 1.5 million of those jobs will go unfilled. (Source: “One Million Cybersecurity Job Openings in 2016,” Forbes.com)

**Total Program Hours**

18

**18**

Possible career titles are security operations center analyst, information security analyst, cyber security analyst, penetration tester, information assurance analyst, and cyber operations analyst.

### Program Learning Outcomes

1. Demonstrate the ability to work with various operating systems.
2. Analyze an organization’s assets and develop an appropriate risk management framework.
3. Conduct security audits and provide appropriate reporting to stakeholders.
4. Demonstrate the ability to create and deploy software that improves an organization’s security posture.
5. Select the appropriate cybersecurity controls for an organization to be compliant with governance and regulations.
6. Demonstrate the ability to design and secure small to medium sized networks.
7. Create appropriate security policies and procedures based upon business processes.

*Gainful employment information for NSCC’s certificate programs can be found online at:  
<https://northweststate.edu/gedt/it-specialist/>  
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+ Refers to technical course work. Students must maintain a minimum grade of “C” in these courses to progress in the program and graduate.

## IT Specialist (Short-Term Technical Certificate)

The IT Specialist short-term certificate program develops skills in database management and reporting as well as foundations of computer programming. Students will work with industry-recognized databases (such as Oracle) and related tools for pulling data (SQL). Students will also develop skills with object-oriented programming languages that will enable them to create both windows- and web-based solutions for end-users.

### Career Outlook

Increased financial regulations, privacy rules and security guidelines are causing more companies to handle data analysis and processing within national markets. But with the high cost of information technology service in larger urban areas, provider companies are being drawn to less populated locales, prompting the demand for highly-trained employees living in these areas. The market is eager for a local option in the IT outsourcing sector for data report writing, electronic forms development and applications development.

### Program Learning Outcomes

1. Use the applications found in the Microsoft Office suite and apply them in a business setting.
2. Develop data analysis and project management skills and be able to apply them in a business setting.
3. Utilize structured programming concepts to develop applications using programming languages such as VBA, VB, and C#, to meet end user requirements.
4. Identify basic networking infrastructure components and list items that comprise a secure network.
5. Set up a basic webpage with HTML/CSS technology.
6. Utilize a Relational Database Management System and be able to query data from various databases (Access, Oracle, SQL).
7. Present database data in a user friendly format using reporting and dashboarding tools.
8. Develop communication skills for both technician-to-technician as well as technician-to-end user interactions.

### Admission Requirements for the Program:

- Basic computer application literacy. Be able to pass 4-part diagnostic exam on Concepts of Information and Communication Technology, Using the Computer and Managing Files, Databases/Access and Spreadsheets/Excel.
- ACCUPLACER testing. Complete any developmental courses needed.
- Course placement Algebra score at the MTH080 level or successful completion of MTH080.
- GPA 2.0 or higher.

<u>Course</u>	<u>Credits</u>
+ DBP110 ICDL Computer Technologies .....	1
+ DBP130 IT Customer Service and Communication .....	2
+ DBP150 Database Basics.....	3
+ DBP205 Discrete Structures Applications .....	3
+ DBP210 Computer Programming I .....	3
+ DBP220 Database Reporting .....	3
+ DBP225 Computer Programming II .....	3
+ CIS195 Networking Essentials.....	3
	<u>21</u>

**Total Program Hours** **21**

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## Welding (Short-Term Technical Certificate)

This welding program provides the students with the technical skills and knowledge to work in the industrial welding field. Such positions as Welder/Fabricator, Production Welder, Millwright, Welding Technician and Welder/Pipe Fitter all utilize multiple welding and fabricating skills. Students are trained in many welding processes which include Shield Metal Arc Welding, Gas Metal Arc Welding, Gas Tungsten Arc Welding, Flux Core Arc Welding, Oxy Fuel Gas Welding /Cutting and Plasma Arc Cutting. Various kinds of metals and thicknesses will be used including mild steel, aluminum and stainless steel. Graduates are eligible to take the American Welding Society certification tests.

### Career Outlook

Welding is a career choice that is in high demand. It offers you the flexibility to switch industries without changing careers. With the increase of manufacturing, the building and repairing of major infrastructure, nuclear power plants, windmills, or drilling of oil, welding has endless opportunities that keep fueling the demand for this skilled technology.

### Program Learning Outcomes

1. Demonstrate safe workplace practices by identifying potential hazards.
2. Accurately follow shop drawings and demonstrate describing, recognizing, and interpreting weld symbols to complete weld jobs.
3. Fabricate and assemble a given project according to prints and within specified tolerances.
4. Identify and demonstrate basic welding terminology and safety in the workplace.
5. Demonstrate accurate working knowledge of GMAW, GTAW, and SMAW welding principles and practices.
6. Demonstrate proper and safe operation of related cutting/beveling equipment
7. Correct and safe setup and shut down of all welding machines and torch equipment
8. Demonstrate proper selection of appropriate electrode, polarity, amperage setting, and electrode manipulation for each specific application.

<u>First Semester</u>	<u>Credits</u>
+ WLD 100 Blue Print Reading and Welding Symbols	2
+ WLD 110 Introduction of Applied Welding Techniques	3
+ WLD 120 Gas Metal Arc Welding	<u>3</u>
	8
<u>Second Semester</u>	<u>Credits</u>
+ WLD 130 Flat & Horizontal Shield Metal Arc Welding	3
+ WLD 140 Gas Tungsten Arc Welding	3
+ WLD 150 Advance Gas Metal Arc Welding	<u>3</u>
	9

**Total Program Hours** **17**

*Gainful employment information for NSCC's certificate programs can be found online at <https://northweststate.edu/gedt/welding>  
Gainful employment information includes: estimated cost of the program, average student loan debt and types of jobs available.*

- + Refers to technical course work. Students must maintain a minimum grade of "C" in these courses to progress in the program and graduate.

## Industrial Automation Maintenance Certificate (Short-Term Technical Certificate)

The Industrial Automation Maintenance program focuses on the maintenance of electrical, mechanical and fluid power equipment. Students of this program will develop their skills in maintenance and troubleshooting of electrical, pneumatic, mechanical, programmable logic controllers, variable frequency drives and more.

### Career Outlook

Many manufacturing companies across the country no longer employ segregated trades (electrician, millwright, machinist, etc.) Instead, they are moving to a multi-craft classification that will perform electrical, mechanics, machining, welding, etc. Therefore, positions for general maintenance and industrial maintenance are currently in great demand.

### Program Learning Outcomes

1. Install, maintain and troubleshoot industrial electrical systems.
2. Analyze technical data.
3. Install, maintain and troubleshoot electric motors and transformers.
4. Fabricate and weld structural components.
5. Install, maintain and troubleshoot a fluid power system.
6. Install and maintain industrial plumbing and piping components & systems.
7. Install, maintain and troubleshoot Programmable Logic Controller systems.
8. Troubleshoot servo and robotic systems.
9. Troubleshoot mechanical system components.

<u>First Semester</u>		<u>Credits</u>
+	IND 120	Industrial Electricity I ..... 3
+	IND 121	Industrial Electricity II ..... 3
+	WLD 110	Introduction to Applied Welding Tech..... 3
+	IND 132	Benchmark ..... 2
+	IND 131	Industrial Pipefitting..... 3
		14

<u>Second Semester</u>		<u>Credits</u>
+	IND 223	Motors & Controls ..... 3
+	IND 134	Industrial Fluid Power..... 3
+	PLC 200	Programmable Controller I ..... 3
+	PLC 230	Servo and Robots ..... 3
+	IND 232	Machine Repair ..... 3
		15

**Total Program Hours** **29**

*Gainful employment information for NSCC's certificate programs can be found online at:  
<https://northweststate.edu/gedt/indust-automation/>  
Gainful employment information includes: estimated cost of the program, average student loan debt and types of jobs available.*

- + Refers to technical course work. Students must maintain a minimum grade of "C" in these courses to progress in the program and graduate.