SHORT-TERM TECHNICAL CERTIFICATES

Contact: Todd Hernandez
419.267.1445
thernandez@northweststate.edu
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.
- COMPASS testing. Complete any developmental courses needed.
- Course placement Algebra score at the MTH080 level or successful completion of MTH080.
- GPA 2.0 or higher.

For information about our graduation rates, the median debt of students who have completed the program, and other important information, visit www.NorthwestState.edu.

+ Refers to technical course work. Students must maintain a minimum grade of “C” in these courses to progress in the program and graduate.
The Truck Driving short-term certificates will lead to gainful employment in commercial truck driving positions. The Basic Truck Driving program is a shortened version of the Truck Driving Short-term Certificate program that will lead to employment in commercial positions which are less demanding of driver skills. This program is not eligible for federal financial aid.

The 18-credit hour Intermediate Truck Driving program is eligible for federal financial aid. This program provides students with the skills required to qualify as an entry-level truck driver in interstate and/or intrastate commerce. Students will acquire skills in maneuvering, cornering, backing, and parking through a variety of urban and rural environments.

**Career Outlook**
Employment of truck drivers is strong and is expected to remain at a high level in Ohio and throughout the country. The world depends upon the transfer of raw materials and finished goods, with the primary method via truck transportation.

**Program Learning Outcomes**
1. Identify tractor-trailer components, a Pre-Trip Inspection, Combination Vehicle and Air Brake systems, doubles and triples, and Tanker and Hazardous Materials endorsements.
2. Identify cab controls and gauges; power train components; and suspension, steering and braking components.
3. Identify engine components and various types of power units and trailers.
4. Identify driving hazards as well as skid control and recovery techniques.
5. Identify various emergency maneuvers to avoid driving emergencies.
6. Identify hazardous materials and proper handling procedures.
7. Demonstrate advanced shifting techniques.
8. Operate in extreme driving conditions.
10. Properly cross roadside scale/inspection.
11. Identify various types of power units and trailers.
12. Demonstrate knowledge of the FMCSR.
13. Identify various transportation technologies.
14. Understand weights and measures, including gross weight, bridge formula, center of gravity and off-tracking.

### Basic Truck Driving

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>+ TRN113 Tractor-Trailer Operations................. 6</td>
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<tr>
<td>+ TRN204 Tractor-Trailer Driving I .................. 6</td>
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**Total Program Hours** 12

### Truck Driving

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<td>+ TRN113 Tractor-Trailer Operations................. 6</td>
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<tr>
<td>+ TRN205 Tractor-Trailer Driving II ................. 6</td>
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</table>

**Total Program Hours** 18

* Courses must be taken in sequence to meet pre-requisites.

For program questions, contact:
Tom Pierce 419.267.1249 tpierce@NorthwestState.edu

For admissions questions, contact:
NSCC Admissions Office 419.267.1320 admissions@NorthwestState.edu

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INDUSTRIAL WELDING  
(SHORT-TERM TECHNICAL CERTIFICATE)

This welding program will provide 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 one of the few career choices that are in high in demand now and at all times. Since welders are needed in almost every industry. It gives 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.

First Semester
+ WLD 100 Blue Print Reading and Weld Symbols 2
+ WLD 110 Introduction of Applied Welding Techniques 3
+ WLD 120 Gas Metal Arc Welding 3

Second Semester
+ WLD 130 Flat & Horizontal Shield Metal Arc Welding 3
+ WLD 140 Gas Tungsten Arc Welding 3
+ WLD 150 Advance Gas Metal Arc Welding 3

Total Program Hours 17

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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.
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
+ IND 103 Applied Geometry & Trig ............... 3
+ IND 132 Benchwork ................................... 2
+ MET 110 Print Reading & Sketching .............. 3
+ IND 140 Principles of Machining .................. 3
+ IND 240 Machining Processes II .................  2

Second Semester
+ IND 241 Tooling & Fixtures ....................... 3
+ MET 222 Programming CNC .......................... 3
+ WLD 110 Introduction to Applied Welding Tech ................................... 3
+ IND 250 Capstone Projects (CNC Ops) ............ 3
+ MET290 Engineering Tech Co-op/Internship . 2

Total Program Hours 28

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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.

<table>
<thead>
<tr>
<th>First Semester</th>
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<tbody>
<tr>
<td>+ IND 120 Industrial Electricity I</td>
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<tr>
<td>+ IND 121 Industrial Electricity II</td>
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<tr>
<td>+ WLD 110 Introduction to Applied</td>
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<tr>
<td>+ IND 132 Benchwork</td>
<td></td>
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<tr>
<td>+ IND 131 Industrial Pipefitting</td>
<td></td>
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<tr>
<td>+ IND 132 Motors &amp; Controls</td>
<td>3</td>
</tr>
<tr>
<td>+ IND 134 Industrial Fluid Power</td>
<td>3</td>
</tr>
<tr>
<td>+ PLC 200 Programmable Controller I</td>
<td>3</td>
</tr>
<tr>
<td>+ PLC 230 Servo and Robots</td>
<td>3</td>
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<tr>
<td>+ IND 232 Machine Repair</td>
<td>3</td>
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<tr>
<td><strong>Second Semester</strong></td>
<td>15</td>
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<td><strong>Total Program Hours</strong></td>
<td>29</td>
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*For information about our graduation rates, the median debt of students who have completed the program, and other important information, visit www.northweststate.edu.*

+ Refers to technical course work. Students must maintain a minimum grade of “C” in these courses to progress in the program and graduate.
The Pipe Welding program focuses on advanced welding techniques in Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GTAW), weld-fabricating skills, and pipe welding procedures for advanced welding certification. Graduates of this program will possess and demonstrate these skills in preparation for American Welding Society certification testing.

Career Outlook
Welding is one of the few career choices that are in high demand now and at all times. Since welders are needed in almost every industry. It gives 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. Define advanced GTAW, GMAW, and SMAW terminology.
2. Demonstrate working knowledge of Advanced GTAW, GMAW, SMAW, and Weld-Fabrication principles and practices.
3. Select proper AC/DC welding equipment for applications.
4. Demonstrate the safe maintenance, setup, and shutdown of all the welding and cutting equipment.
5. Create welded assemblies from blue prints.
6. Demonstrate Gas Tungsten Arc Welding proficiency.
7. Demonstrate Shielded Metal Arc Welding proficiency.

First Semester
+ WLD 100 Blue Print & Weld Symbols ............ 2
+ WLD 110 Introduction to Applied Welding Tech .................................. 3
+ WLD 120 Gas Metal Arc Welding ................... 3
+ WLD 130 Flat & Horizontal SMAW ............... 3
+ WLD 140 Gas Tungsten Arc Welding .......... 3
14

Second Semester
+ WLD 150 Advanced GMAW ......................... 3
+ WLD 210 Vertical & Overhead SMAW .......... 3
+ WLD 220 Advanced GTAW ............................ 3
+ WLD 250 Pipe Welding ................................... 3
+ WLD 260 Pre-Pipe Certification .................... 3
15

Total Program Hours 29

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