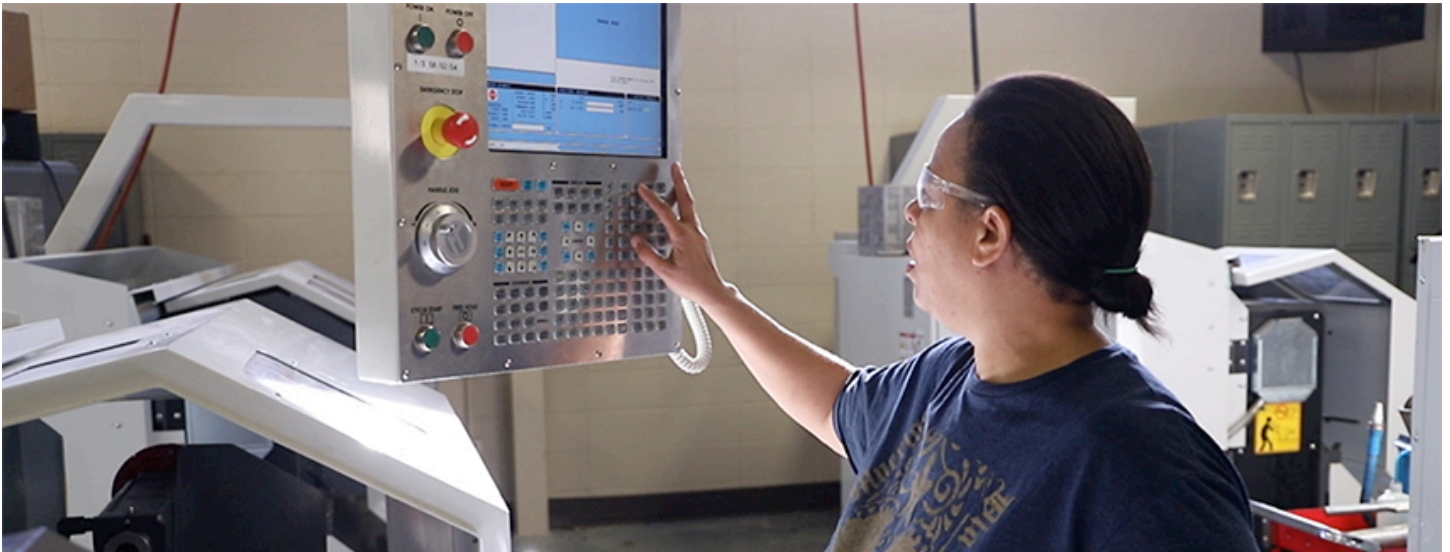**BLACKHAWK** Technical College

COMPUTER NUMERIC CONTROL (CNC) TECHNICIAN

Two-Year Technical Diploma
32-444-1

This two-year technical diploma program is designed to provide students with a broad technical background in both job-shop and production machining. The CNC Technician program was developed using the National Institute for Metalworking Standards (NIMS) and National Tooling & Machining Association standards. The courses are delivered in such a way to allow the students to experience a "hands-on" approach to learning. Furthermore, each student will spend his or her time learning in a practical setting.

Using the CNC/CAM software and equipment, including a four axis machining center, you will learn to select the proper tools and fixtures required to machine parts. A graduate of the program should be proficient in metal machining operations and planning procedures, demonstrating practical machining techniques in accordance with engineering drawing specifications.

Topics of study include Computer Numerical Control (CNC) programming; Computer Assisted Manufacturing (CAM) software; precision measuring devices including a CMM; precision CNC mills, CNC training and machining centers; blueprint reading; and applied shop mathematics. To complete the program, an internship is required.

Program Outcomes

- Apply basic safety practices in the machine shop

  Interpret industrial/engineering drawings

  Apply precision measuring methods to part inspection

  Perform basic machine tool equipment set-up and operation

  Perform programming, set-up and operation of CNC Machine Tools

  Perform advanced CNC machining operations

Graduates Have Found Employment As

- CNC Technician
- CNC Programmer
- CNC Machinist
- CNC Operator
- Machine Tool Operator
- Apprentice Machinist
- Machine Set-up Person
- Tool Room Machinist
- Maintenance Machinist

Semester 1		Credits
421-310	Print Reading for Manufacturing	1
422-310	Metrology Fundamentals	1
420-312	Lathe Fundamentals 1	1
420-310	Milling Fundamentals 1	1
444-332	Layout & Benchwork	1
420-314	Semi-Precision Operations	1
444-336	CNC Lathe Fundamentals	1
444-335	CNC Mill Fundamentals	1
444-340	CNC Turning Operations 1	1
444-344	CNC Milling Operations 1	1
420-315	Turning Setup 1	1
420-317	Milling Setup 1	1
804-315	Trade Math	1
	Credits	**13**
Semester 2		
444-331	Blueprint Reading 2	1
422-311	Metrology Inspection	1
420-313	Lathe Fundamentals 2	1
420-311	Milling Fundamentals 2	1

444-341	CNC Turning Operations 2	1
444-345	CNC Milling Operations 2	1
444-334	CNC G-Code Programming for Lathes	1
444-333	CNC G-Code Programming for Mills	1
420-316	Turning Setup 2	1
420-318	Milling Setup 2	1
420-321	Fixtures and Tooling - Lathes	1
420-320	Fixtures and Tooling - Mills	1
420-325	Machining Calculations	1
804-308	Shop Mathematics II	2
	Credits	**15**
Semester 3		
444-338	Manufacturing Support Systems	1
422-312	Metrology Gauging/SPC	1
606-310	GD&T Interpretations	1
444-342	CNC Turning Programming 1	1
444-346	CNC Milling Programming 1	1
606-311	Basic CAD - Solidworks and AutoCAD	1
444-354	Basic CAM - MasterCAM	1
444-343	CNC Turning Programming 2	1
444-347	CNC Milling Programming 2	1
444-337	Introduction to Gears & Gear Cutting	1
422-322	Metallurgy for Machinists	2
	Credits	**12**
Semester 4		
444-348	CNC Milling Programming 3	1
444-349	CNC Milling Programming 4	1
444-352	CNC Turning Problem Solving 1	1
444-350	CNC Milling Problem Solving 1	1
444-353	CNC Turning Problem Solving 2	1
444-351	CNC Milling Problem Solving 2	1
444-339	CMM Concepts	1
606-312	Intermediate CAD - Solidworks and AutoCAD	1
444-355	Intermediate CAM - MasterCAM	1
420-319	Surface Grinding Operations	1
444-357	CNC Capstone	1
444-356	CNC Internship	1
801-311	Communication	2
	Credits	**14**
	Total Credits	**54**

General Education Courses Within Program

Code	Title	Credits
801-311	Communication	2
804-315	Trade Math	1
804-308	Shop Mathematics II	2