

Computer Numerically Controlled (CNC) Machinist Technology / CNC Machinist

Certificate of Development • Program Code: 106

Credit Hours: 20 • Contact Hours: 20

Associate Dean: Pam Miller

The North Central Certificate of Development in Computer-Numeric-Controlled Programming and Operations prepares motivated students for work in modern factories, manufacturing plants, and machine shops where computer numerically controlled (CNC) machines are essential pieces of equipment. In the past, workers manually controlled the heavy equipment used to cut, shape, and form products from raw wood and metals. A CNC programmer / operator can now input highly-detailed instructions into a computer system that guides robotic arms and tools to perform precision machining jobs. Skilled CNC programmers or operators are able to improve the efficiency of production and the quality of finished products.

REQUIRED COURSES			20 CREDIT HOURS
CAM	100	Introduction to CAM programming	1
CAM	110	Operations / Work Holding	1
CAM	120	*OE CAM Spindle Speeds, Feed Rates, Cutter Compensation	1
CAM	130	*OE Planning for Various Materials and Processes	1
CAM	140	*OE Creating 3D Geometry and Assigning Tool Paths	1
CAM	150	*OE Multiple Set-up Jobs and Datum Locations	1
CNC	102	Introduction to CNC Lathe Operations	1
CNC	103	Introduction to CNC Milling Operations	1
CNC	112	CNC Lathe Operations and Holding Setup	1
CNC	113	CNC Mill Operations and Holding Setup	1
CNC	122	CNC Lathe Spindle Speed and Feed Rates	1
CNC	123	CNC Mill Spindle Speed and Feed Rates	1
CNC	132	CNC Lathe On-Board G-Code Edit and Operation	1
CNC	133	CNC Mill On-Board G-Code Edit and Operation	1
CNC	180	CNC Programming, Lathe or Mill Independent Project	1
COM	170	Interpersonal Communication	3
OAS	101	Customer Service	1
OAS	190	Employability Skills	1

* Open Entry / Self-Paced: North Central offers some Computer-Numeric-Controlled Programming and Operations courses in an open-entry (OE) self-paced format. This format enables students to start courses after the normal semester and work at a pace agreed upon by the student and the instructor. Open lab time is scheduled for daytime and evening access to facilitate student work schedules. The college's Mobile Digital Fabrication Lab is designed for CNC activities involving area high schools, employers, and North Central students.

SUGGESTED SEQUENCE FOR FULL-TIME STUDENTS: SEMESTER I (FALL)

CAM	100	Introduction to CAM programming
CAM	110	Operations / Work Holding
CAM	120*	OE CAM Spindle Speeds, Feed Rates, Cutter Compensation
CNC	102	Introduction to CNC Lathe Operations
CNC	103	Introduction to CNC Milling Operations
CNC	112	CNC Lathe Operations and Holding Setup
CNC	113	CNC Mill Operations and Holding Setup
COM	170	Interpersonal Communication
OAS	101	Customer Service

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SEMESTER II (WINTER)

CAM	130*	OE Planning for Various Materials and Processes
CAM	140*	OE Creating 3D Geometry and Assigning Tool Paths
CAM	150*	OE Multiple Set-up Jobs and Datum Locations
CNC	122	CNC Lathe Spindle Speed and Feed Rates
CNC	123	CNC Mill Spindle Speed and Feed Rates
CNC	132	CNC Lathe On-Board G-Code Edit and Operation
CNC	133	CNC Mill On-Board G-Code Edit and Operation
CNC	180	CNC Programming, Lathe or Mill Independent Project
OAS	190	Employability Skills