



CNC Mill / Lathe Programming Level 1 for Teachers

Meets: M, Tu, W, Th., F, Sat. From 8:00 AM to 4:40 PM 6 sessions

Location: EIT31 DCC Charles Hawkins building

Instructor: Todd Sanders, Joe Distad, Kevin Poole, or Josh McDowell

Fee: \$2700 (currently GHF scholarships \$2000)

DCC HTEC CNC Mill / Lathe Programming Operations Level 1

Description:

This course is designed for those with some basic CNC Lathe and Mill G-code programming, setup and operations experience. Subjects covered in the textbook include: workplace skills, safety, measurement, math, quality, metals, maintenance, drawings including GD&T, layout, hand tools, saws, offhand grinding, drilling operations, CNC basics, CNC lathe setup and operation, basic CNC mill G-code programming, and an introduction to CAD/CAM. Attendees should be able to use basic measuring tools and understand the basics of machining operations and shop math. Because this class is tailored to teachers we do not require the textbook work prior to the start of class but we do highly recommend reading through the sections on CNC Machining. We do require the completion of the on-line training for both machine types. The skills covered in the online training include CNC lathe/mill setup, programming and operation. The Haas CNC Lathe and Mill Workbook also covers G&M-Code programming in much detail. The hands-on portion involves six 8-hour days directly on Haas CNC machines with 1 person to a machine. Class size is limited to 5 people for the highest quality training possible. The hands-on training includes safety, machine pre-checks, startup, tooling and work holding, setting work and tool offsets manually, basic G-code programming, inputting and editing programs, adjusting wear offsets, machining parts and inspecting results with precision measuring tools and probes. The last day of each 3 day segment is set aside for NIMS level 1 testing. This is *optional* but most do attempt it. If you wish you can take the NIMS test or the day can be treated as another day of training. We have alternate projects for this. If you do not attempt the NIMS test the instructor will be able to help you with point plotting, program writing, machine set up, and making the part.

There is an online curriculum that needs to be taken at least 4 weeks before on-site training begins. The skills covered in the online emulator training (Immerse2Learn) include CNC mill/lathe setup, programming and operation. DCC will provide instructions on accessing the online training once registered.

Note: This is a 6 day class, however if students complete all work in 5 days, Sat. would be optional.

Projects:

The Lathe level 1 work pieces are steel; carbide inserted turning tools are used; parts are dimensioned in inch; machines are run in the inch system; tool nose compensation and type 1 turning cycles are used.

The Mill level 1 work pieces are aluminum; carbide endmills and drills are high performance tools; parts are dimensioned in inch; machines are run in the inch system; cutter diameter compensation is used. The final day of the each class is dedicated to the NIMS Performance Test. The completed parts are sent out to the NIMS Met-Tec Committee members for inspection. If the parts are 100% within specification then DCC will provide instructions for taking the theory test to complete the credential.

Textbook:

Precision Machining Technology; Hoffman, Hopewell, Janes, Sharp; Delmar-Cengage Learning
ISBN-13:978-1-4354-4767-7

Workbook:

Haas Automation CNC Lathe Programming Workbook (hard copy provided by DCC)
Haas Automation CNC Mill Programming Workbook (hard copy provided by DCC)

Online Curriculum:

Immerse2Learn :
Basic Haas CNC Lathe Setup
Basic Haas CNC Lathe Programming
Basic Haas CNC Milling Machine Setup
Basic Haas CNC Milling Machine Programming

Summary:

30-40 hours textbook and online (begin at least 4 weeks prior to on-site training)
6 eight hour days on-site working on Haas CNC machining centers
Cost: \$2700. Currently, the Gene Haas Foundation scholarships are available for HTEC Network teachers for \$2000.

NIMS Credentials:

NIMS CNC Turning: Programming Setup & Operations Level 1
NIMS CNC Milling: Programming Setup & Operations Level 1
NIMS Measurement, Materials and Safety (optional)