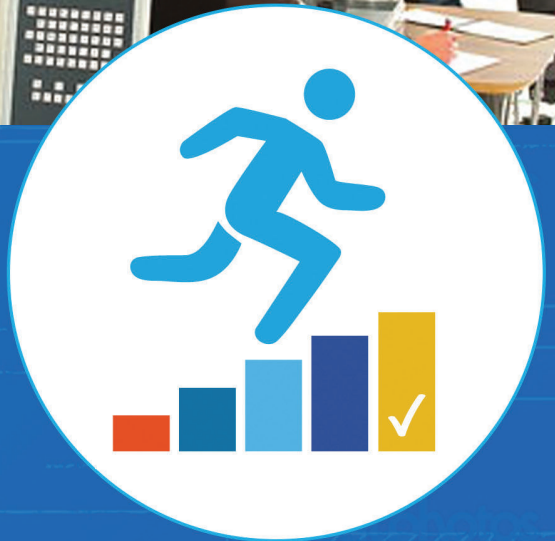


# 5 Steps to 5 axis

How to Prepare Students for  
Real-World CNC Careers



**AΣT**Labs





## 5 Steps to 5 Axis

Dynamic and efficient, 5-axis machining is fast becoming the standard in manufacturing. As more complex geometries and production efficiencies are demanded by industry, how do we prepare students with the right skills needed to excel as advanced, 5-axis adept machinists?

### Step One: Choose Professional-Grade CNC Machines and Software from EMCO

The benefits of choosing EMCO's high-quality professional-grade 5-axis machines, can be quantified in more time on the shop floor teaching, and less downtime, mired in troubleshooting or waiting for technical support. Made in the heart of Europe, EMCO machines boast an attractive price-performance ratio.

These well-supported CNC education packages are supported by the leaders in today's advanced manufacturing field – Siemens and MasterCAM to make sure your students are getting real-world skills that transfer seamlessly into a well-paying career upon graduation.



Choose the Right Machine

#### Level One - Concept Mill 260

- Up to 5 Controls available on 1 machine
- Tool magazine with SK30 DIN69871
- 20 times tool drum with double-gripper
- All axes equipped with servo drive motors
- Rotary table as an optional fourth axis
- DNC robotic interface

[DOWNLOAD SPECS](#)

#### Level Two - MaxxMill 400

- 5-axis machining in a single set-up
- Top thermostability
- Top machining precision
- Modern moving column concept
- Massive swivel-rotary table with  $\varnothing$  400 mm provides high stability and precision
- Compact machine design
- Cutting-edge control technology from Siemens or Heidenhain
- Extensive options such as water-cooled motor spindle with 24000 rpm, chain magazine with 50 positions ISO30 / HSK-A40, etc.
- Optimal chip removal
- Attractive price-performance ratio

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#### Level Three - MaxxMill 500

**PC-controlled 3-axis Milling Machine for Universal CNC Training**

- Up to 9 Controls available on 1 machine
- Infinitely adjustable main drive
- Automatic 8 station tool turret
- High-resolution axis motors
- Electromechanical tailstock
- Robotic interface for integration into FFS/CIM systems

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# emco



**READ MORE AND WATCH A VIDEO ABOUT  
EMCO 5-AXIS MACHINE SOLUTIONS**

[CLICK HERE](#)





## STEP TWO

Future-oriented CNC Training Begins with the right foundation. Siemens' SINUMERIK CNC technology platform has long been the preferred choice within elite CNC manufacturing tiers worldwide. Using the same CNC technology platform most widely used in industry to train students will provide them with the skill-set actually needed by today's employers.

**“Currently, STEM (Science, Technology, Engineering and Math) jobs are growing at 1.7 times the rate of non-STEM jobs . . . Employers need graduates who are more than basic machine operators for basic parts cutting. Siemens CNC instruction best supports this career path from basic to advanced knowledge.”**

– Brian Hamilton, CNC education manager, Siemens Industry Inc.

## Choose the Right Software

Equipping your school's CNC training program requires many considerations. Many high-end machines do not offer a complete training solution, and those that do only teach a specific set of controls. Jobs in today's advanced manufacturing industry require fluency in a wide range of industrial controls along with crucial operational skills to run 5-axis CNC programs.

EMCO CNC machine solutions combine the performance and speed industry requires combined with advanced training software solutions actually used by industry – Siemens SINUMERIK. Best of all, this modular training program covers basic-to-advanced machining skills all on one platform.

### Siemens SINUMERIK CNC technology offers:

- One control platform teaches comprehensive foundational skills right up to advanced 5-axis CNC instruction.
- The platform most used by high-tech manufacturing and backed by the world's leading motion control company
- PC-based training system using SinuTrain
- Same HMI, setup and simulation screens as actual machine controls - giving students the ability to learn remotely and instructors the ability to demonstrate virtually.
- Modular content customized to curriculum
- Free nationwide instruction training, support and certification with every machine
- Industry-recognized certification upon graduation

# SIEMENS



**Download our information kit for more about complete 5-axis CNC training solutions by EMCO with included Siemens LEAP training:**  
**[CLICK HERE](#)**

Contact us today for more information:  
info@aetlabs.com | 888-768-4550

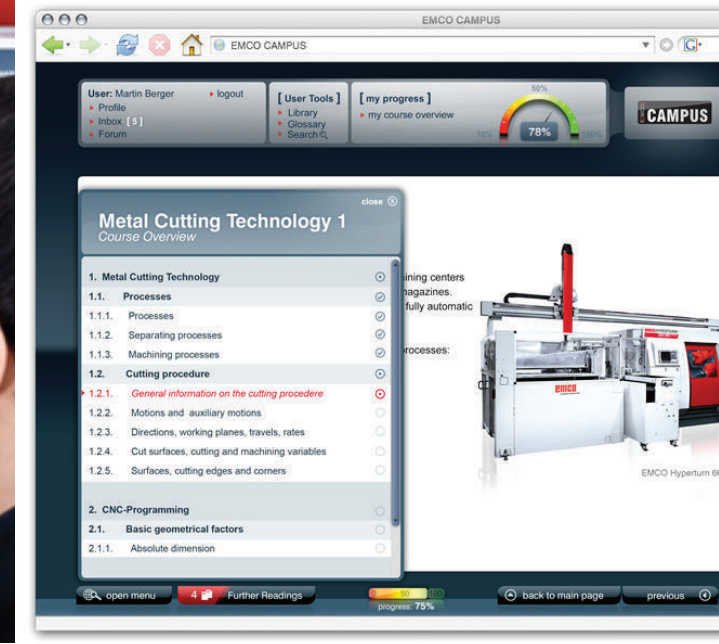




## STEP THREE

The EMCO Campus modular platform provides a progressive training pathway to a career in 5-axis CNC machining.

A “choose your own adventure” style program, each level of EMCO Campus preps students for real-world ready jobs in manufacturing, from basic CNC machine operator to 5-axis CNC machine technicians.



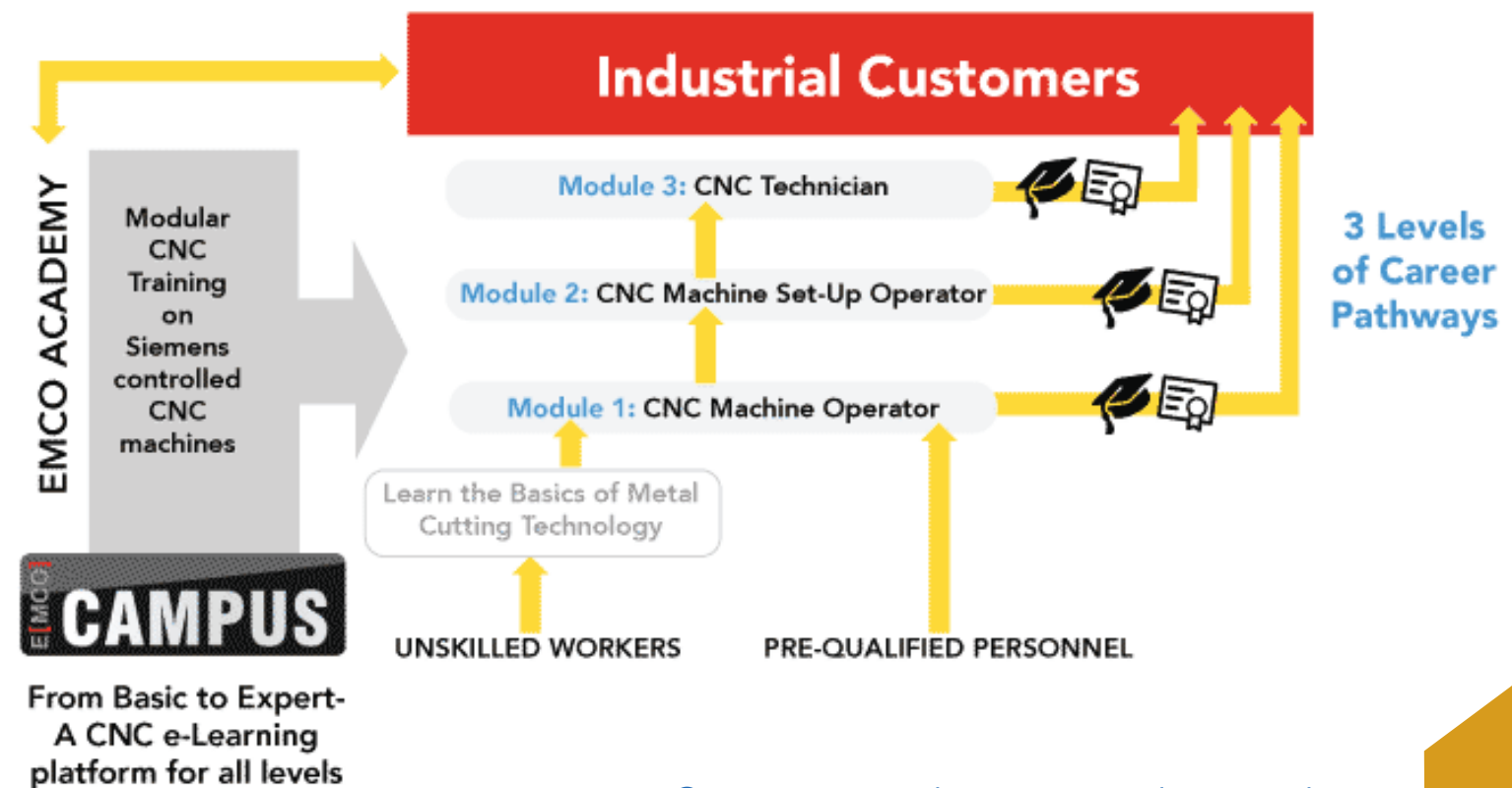
## Choose Modular Courseware Designed for All Skill Levels



**EMCO Campus can be used independently of Concept machines and control software. We are pleased to offer a free demo version of this program for New England educators.**

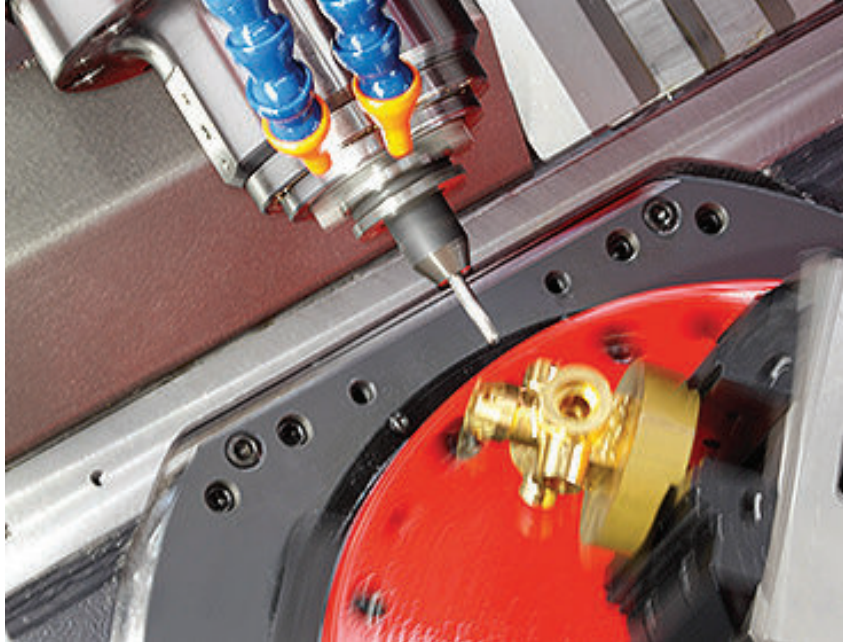
Register for your copy: [CLICK HERE](#)

The EMCO Campus program can be used by students of all skill levels. For beginners it starts with foundational CNC basic principles as well as an intro to Machining Technology and Quality control. From there, students can learn and earn certification in 3 qualification levels:



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## STEP FOUR

### Offer Comprehensive Instructor and Student Training and Certification

The SINUMERIK CNC technology platform from Siemens has long dominated the world's high-end CNC manufacturing tiers. Today, SINUMERIK CNCs are increasingly preferred by employers wanting a competitive advantage.

Prepare your students for real-world industry with game-changing machine tool performance combined with basic-to-advanced machine training – all on the same CNC platform.



**“The manufacturing industry is investing heavily in and quickly moving to five-axis machining. Students must learn five-axis machining to obtain the best, highest-paying jobs at the best companies.”**

**Steve Holmes, CNC education manager at Siemens**

#### Level 1 — ShopMill and ShopTurn

Upon completion of the course, participant will be able to create part programs using the ShopMill and ShopTurn graphical user interface, setup jobs through the jog functionality, as well as run parts in auto mode. Each student will be provided with a complimentary copy of SINUTRAIN for SINUMERIK Operate at the end of the class.



#### Level 2 — programGuide for Milling and Turning

Upon completion of the course, participant will be able to create part programs in G-code using the programGuide interface, setup jobs through the jog functionality, as well as run parts in auto mode. Each student will be provided with a complimentary copy of SINUTRAIN for SINUMERIK Operate at the end of the class.

#### Level 3 — 5-axis and High-Speed Milling

This is an advanced-level course covering special aspects of 5-axis operation and programming, and addresses high-speed cutting (HSC) for applications that use SINUMERIK 828D / 840D sl controls. Each student will be provided with a complimentary copy of SINUTRAIN for SINUMERIK Operate at the end of the class.

**“There are a lot of companies in the Silicon Valley that want to know, ‘Do you have any machining experience? A certification on a Siemens 840D, 828D, that’s going to put you in a whole different ballpark.’”**

**Mike Appio, Coordinator for the Design and Manufacturing department at De Anza College, Cupertino, California,**

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## STEP FIVE

### Acquire Top-Level 5 Axis Training from Siemens and EMCO

Optimum results in fitness will benefit from coaching, through a proven and progressive program, led by a professional. Likewise, proficiency in 5-axis machining is propelled by receiving expert support and training by the authorities in advanced manufacturing – Siemens and EMCO machine.

**We offer the most comprehensive 5-Axis Training Solutions for New England Schools, with real-world certification recognized by industry.**

Students are led through a top-level course which addresses high-speed cutting (HSC) for applications that use SINUMERIK 828D / 840D sl controls. Each attendee receives a complimentary copy of SINUTRAIN for SINUMERIK Operate at the end of the class for reference in their future careers.



Once I brought Siemens in, those students who struggled with code got to see the conversational part of it, and they took off with it,” he says. “When they can see it before they actually run their simulation, it helps them. It gives them that visual, because a lot of people are visual learners, like I was.”

**Demetrius Anthony, Lead instructor for manufacturing/engineering program at Eagle Mountain-Saginaw ISD-Hollenstein Career & Technology Center in Fort Worth, Texas**

Interested in learning more about EMCO 5-axis training packages and see the EMCO MaxxMill 400 in action?

Register for an upcoming live on-site, or Zoom demo – an opportunity open to all New England manufacturing instructors.

**CLICK TO REGISTER!**



AET's Bryan Maynard Setting up the Concept Mill 260 at Essex North Shore.

Interviews courtesy of Siemens and EMCO via [Production Machining.com](https://www.productionmachining.com)

Contact us today for more information:  
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