Siemens Certificate + EMCO Industrial Training Modules
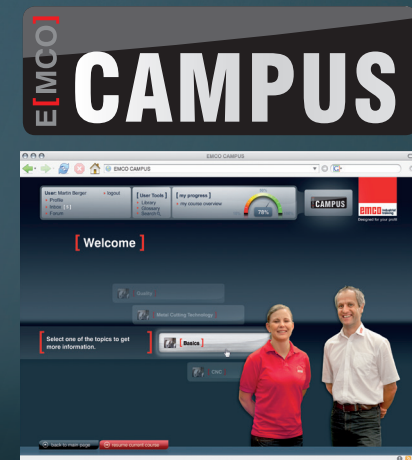
SIEMENS

CAMPUS

EMCO — a full-range supplier of machines:

- Concept machines for industrial training
- Conventional machines
- CNC machines

SINUMERIK Operate including ShopMill and ShopTurn

EMCO e-learning courseware including:

- A complete curriculum material for basics in Turning and Milling Technology
- Metal Cutting Technology
- Quality Management
- CNC Programming

Three levels of Siemens workshops for free — find more information on the back.

➡ Key factors for a successful industry-oriented training

www.emco-world.com

[Are you and your students Siemens certified?]

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SINUMERIK 828D and 840D sl —
three levels of operation and programming training for programmers, operators and users

General information		
Length: 3 days (each level)	**Capacity:** 12 students	**Cost:** There is no fee for the workshop. Participants are responsible for their own travel and living expenses. Lunch will be provided.
Location: School location	**Registration:** www.usa.siemens.com/cnctraining	

Level 1   ShopMill and ShopTurn

Description/Objective   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.

Requirements   Basic knowledge of operation and programming of milling and turning machines is required.

Target group   Machine tool OEM and dealer personnel, who provide support and training for programming and operating CNC milling machines utilizing the programGuide user interface.

Content
- Introduction to
  - functionality and the SINUMERIK CNC
  - tool management
  - the manual operating area
  - program creation, testing, modifying and saving
- Programming with standard milling and turning cycles
- Programming free contours using contour calculator
- Centering, drilling, thread cutting
- Working with "multiple clamping" function

Class specifics   There will be a set number of workstations available for the class. If use of a personal computer is desired, it must be a Windows 7 or older operating system. We will provide a 60-day trial version of SINUTRAIN for student use.

Level 2   programGuide for Milling and Turning

Description/Objective   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.

Requirements   Basic knowledge of operation and programming of milling and turning machines is required. Attendance to the Level 1 ShopMill and ShopTurn class is recommended.

Target group   Machine tool OEM and dealer personnel, who provide support and training for programming and operating CNC milling machines utilizing the programGuide user interface.

Content
- Introduction to
  - advanced functions in SINUMERIK CNC
  - advanced tool management including tool life management
  - MDI mode
  - G-code program creation, testing, modifying and saving through programGuide
- Programming with standard milling and turning cycles
- Programming free contours using contour calculator
- Centering, drilling, thread cutting
- Programming with sub-routines
- Working with transformations
- Setup and operation of 4-axis machine tools
- Programming of 4-axis applications
- Setup and operation of lathes with milling capabilities
- Programming of lathes with milling capabilities

Class specifics   There will be a set number of workstations available for the class. If use of a personal computer is desired, it must be a Windows 7 or older operating system. We will provide a 60-day trial version of SINUTRAIN for student use.

Level 3   5-axis and High-Speed Milling

Description/Objective   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.

Requirements   Knowledge of, and experience in, programming SINUMERIK 840D sl including: coordinate systems FRAME concepts, tool compensations, program jumps and control structures, macro technology and parameterization of standard cycles. Attendance to the Level 2 programGuide programming class is strongly recommended.

Target group   Machine tool OEM and dealer personnel, who provide support and training for programming, operating, and using 5-axis milling machines equipped with SINUMERIK 828D/840D sl controls.

Content
- Introduction and overview of transformations and 5-axis machining
- 5-axis transformation and 5-axis machine kinematics
- 3D tool offset and relevant tool data (Cut3DC)
- Face milling, circumferential milling and high-speed cutting (HSC) issues (Cycle832)
- Manual control for active transformation
- Online tool length offset
- Machining oblique surfaces with swiveling tools with/without 5-axis transformation
- Swiveling cycle, system frames (Cycle800)
- Demonstrations and exercises using a 5-axis training machine

Class specifics   There will be a set number of workstations available for the class. If use of a personal computer is desired, it must be a Windows 7 or older operating system. We will provide a 60-day trial version of SINUTRAIN for student use.