

## SINUMERIK CNC TRAINING

# Level 3: 5-axis and high-speed milling

## in-person, instructor-led

### Operation and programming for SINUMERIK 828D, 840D sl and SINUMERIK ONE

This is an advanced-level course covering special aspects of 5-axis machine tool operation and programming, and addresses high-speed cutting (HSC) topics for applications that use SINUMERIK 828D, 840D sl and SINUMERIK ONE controls.

#### Requirements

Knowledge of, and experience in, programming SINUMERIK 828D, 840D sl and SINUMERIK ONE controls including coordinate systems FRAME concepts, tool compensations, program jumps and control structures, macro technology, and parameterization of standard cycles. Previous attendance in the Level 2 programGuide programming class is strongly recommended.

#### Class specifics

There will be a set number of workstations available for the class. If use of your own personal computer is desired, it must be a Windows 10 operating system. We will provide a trial version of SINUTRAIN for your use.

#### Target group

Machine tool builders and dealers, who provide support and training for the operation and programming of 5-axis milling machines equipped with SINUMERIK 828D, 840D sl and SINUMERIK ONE.

#### Content

- Introduction and overview of transformations and 5-axis machining
- 5-axis transformation and five-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)
- Practical demonstrations and exercises using a 5-axis training machine

#### Course details

Length	5 days
Location	Siemens Industry, Inc., 390 Kent Avenue, Elk Grove Village, IL 60007
Registration	<a href="http://usa.siemens.com/cnc-training">usa.siemens.com/cnc-training</a>
Capacity	12 participants
Cost	<b>There is no fee for the workshop.</b> Participants are responsible for their own travel, living expenses and meals.