

## **Surface & Multiaxis CNC Machining Application Using MasterCAM X**

This is an advanced training program for CNC machinists, programmers, and manufacturing engineers with MasterCAM experience and training who need to develop more advanced skills in 3-D surface and solid modeling techniques, multiaxis toolpath programming for complex machined parts, and developing post processors to accommodate various machine tools.

This training program has been created for CNC professionals who must advance their skills and knowledge for using CAD/CAM technology to develop NC programs for complex machined parts with an emphasis on speed, accuracy, and cycle time efficiency. For this advanced training participants must have successfully completed a basic MasterCAM® training program or have experience in programming toolpaths using MasterCAM®. Applicants for this program must be able to demonstrate their ability to create geometry and toolpaths for contouring, drilling, tapping, threading, and pocketing operations using Mastercam®.

### **Surface and Multiaxis CNC Programming Using Mastercam®**

**Mastercam.**

- Defining specific CNC machining centers in MasterCAM X
- Developing Complex CAD geometry for 3-D surface and solid models
- Developing 3-D surface machining toolpaths for rough and finish operations
- Preparing toolpaths for multiple operations using different tool planes
- Changing the work coordinate system for complex parts or customer furnished geometry
- Developing 4 axis rotary toolpaths using axis substitution and positioning
- Developing 5 axis toolpaths for complex parts
- 3-D and Multiaxis toolpath optimizing and editing
- Planning operations and toolpaths for complex multiaxis operations
- Importing solid and surface model geometry from other CAD softwares
- Advanced toolpath development from surface and solid models
- Editing/developing post processors for different machines
- Application project

