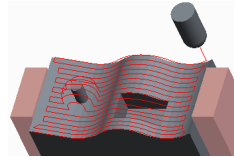


Milling using Creo Parametric 4.0

Overview

| | |
|---------------|------------|
| Course Code | TRN-5108-T |
| Course Length | 40 Hours |



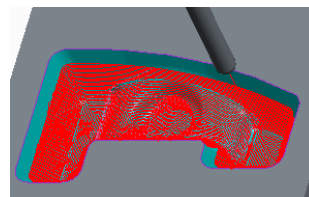
In this course, you will learn how to machine products using Creo Parametric manufacturing tools. This course covers creating tool paths for three axis milling machines. During the course, you will learn how to complete each phase of the manufacturing process. You will start by creating manufacturing models and configuring the manufacturing environment. This will include configuring tools, fixtures, and machining operations. You will then learn how to create milling sequences, holmaking sequences, and post-process cutter location (CL) data to create machine code. After completing the course, you will be able to create numerical control (NC) programs for milling machines and post-process cutter location (CL) data to create machine specific code.

At the end of each module, you will complete a set of review questions to reinforce critical topics from that module. At the end of the course, you will complete a course assessment in PTC University Proficiency intended to evaluate your understanding of the course as a whole.

This course has been developed using Creo Parametric 4.0 B000.

Course Objectives

- Understand the manufacturing process
- Create and configure manufacturing models
- Configure the manufacturing environment
- Create and modify milling sequences
- Create and modify holmaking sequences
- Use the process manager to create NC sequences
- Post-process cutter location (CL) data



Prerequisites

- Introduction to Creo Parametric – Fundamentals (Web Based Training) or equivalent experience

Audience

- This course is intended for manufacturing engineers and NC machinists
-

Agenda

Day 1

| | | |
|--------|---|--|
| Module | 1 | Introduction to Manufacturing |
| Module | 2 | Creating Manufacturing Models |
| Module | 3 | Configuring Operations |
| Module | 4 | Using Reference Models |
| Module | 5 | Using Workpiece Models |
| Module | 6 | Creating and Using NC Model Assemblies |
| Module | 7 | Creating and Configuring a Work Center |

Day 2

| | | |
|--------|----|-------------------------------------|
| Module | 8 | Creating and Configuring Tools |
| Module | 9 | Using Template Manufacturing Models |
| Module | 10 | Using Manufacturing Parameters |
| Module | 11 | Creating Face Milling Sequences |

Day 3

| | | |
|--------|----|--|
| Module | 12 | Creating Volume Milling Sequences |
| Module | 13 | Creating Profile Milling Sequences |
| Module | 14 | Creating Straight Cut Surface Milling Sequences |
| Module | 15 | Creating From Surface Isolines Surface Milling Sequences |

Day 4

| | | |
|--------|----|---|
| Module | 16 | Creating Cut Line Surface Milling Sequences |
| Module | 17 | Advanced Surface Milling Options |
| Module | 18 | Creating Roughing and Re-roughing Sequences |
| Module | 19 | Creating Finishing Sequences |

Day 5

| | | |
|--------|----|--|
| Module | 20 | Creating Trajectory Milling Sequences |
| Module | 21 | Creating Holemaking Sequences |
| Module | 22 | Creating Engraving Sequences |
| Module | 23 | Using the Process Manager |
| Module | 24 | Creating and Post-Processing CL Data Files |

Course Content

Module 1. Introduction to Manufacturing

- i. Manufacturing Process Overview

Knowledge Check Questions

Module 2. Creating Manufacturing Models

- i. Creating Manufacturing Models

Knowledge Check Questions

Module 3. Configuring Operations

- i. Configuring Operations

Knowledge Check Questions

Module 4. Using Reference Models

- i. Using Reference Models

Knowledge Check Questions

Module 5. Using Workpiece Models

- i. Using Workpiece Models

Knowledge Check Questions

Module 6. Creating and Using NC Model Assemblies

- i. Creating and Using NC Model Assemblies

Knowledge Check Questions

Module 7. Creating and Configuring a Work Center

- i. Creating and Configuring a Work Center

Knowledge Check Questions

Module 8. Creating and Configuring Tools

- i. Understanding Milling Tools
- ii. Creating Standard Milling Tools
- iii. Creating Solid Model Milling Tools
- iv. Creating and Using Tool Cutting Data
- v. Retrieving Tool Data

Knowledge Check Questions

Module 9. Using Template Manufacturing Models

- i. Using Template Manufacturing Models

Knowledge Check Questions

Module 10. Using Manufacturing Parameters

- i. Understanding Manufacturing Parameter Concepts
- ii. Configuring Parameter Values
- iii. Using Site Parameter Files

Knowledge Check Questions

Module 11. Creating Face Milling Sequences

- i. Basic Face Milling
- ii. Lateral Control Face Milling Parameters
- iii. Depth Control Face Milling Parameters
- iv. Entry and Exit Face Milling Parameters

Knowledge Check Questions

Module 12. Creating Volume Milling Sequences

- i. Basic Volume Milling
- ii. Volume Milling with Mill Windows
- iii. Scanning Volume Milling Parameters
- iv. Depth and Lateral Control Volume Milling Parameters
- v. Stock Allowance Volume Milling Parameters
- vi. Gathering Mill Volumes
- vii. Modifying Volume Milling Toolpaths

Knowledge Check Questions

Module 13. Creating Profile Milling Sequences

- i. Basic Profile Milling
- ii. Depth and Lateral Control Profile Milling Parameters
- iii. Lead In and Lead Out Motions

Knowledge Check Questions

Module 14. Creating Straight Cut Surface Milling Sequences

- i. Understanding Surface Milling
- ii. Straight Cut Surface Milling
- iii. Straight Cut Surface Milling Parameters
- iv. Creating Surface Milling Reference Geometry

Knowledge Check Questions

Module 15. Creating From Surface Isolines Surface Milling Sequences

- i. From Surface Isolines Surface Milling

Knowledge Check Questions

Module 16. Creating Cut Line Surface Milling Sequences

- i. Cut Line Surface Milling

Knowledge Check Questions

Module 17. Advanced Surface Milling Options

- i. Advanced Surface Milling Options

Knowledge Check Questions

Module 18. Creating Roughing and Re-roughing Sequences

- i. Basic Roughing and Re-roughing
 - ii. Roughing Scans and Entry and Exit Parameters
-

- iii. Step Depth and Tolerance Control Roughing Parameters
- iv. Additional Scallop Height Control Roughing Parameters
- v. Roughing Corner Options

Knowledge Check Questions

Module 19. Creating Finishing Sequences

- i. Basic Finishing
- ii. Editing Finishing Parameters

Knowledge Check Questions

Module 20. Creating Trajectory Milling Sequences

- i. Understanding Trajectory Milling
- ii. Creating Sketched Milling Tools
- iii. Basic 2-Axis Trajectory Milling
- iv. 2-Axis Trajectory Milling Depth Control Parameters
- v. 2-Axis Trajectory Milling - Cutting Slices Parameters
- vi. Trajectory Milling
- vii. Trajectory Milling Multi-Step and Multi-Pass Parameters

Knowledge Check Questions

Module 21. Creating Holemaking Sequences

- i. Understanding Holemaking
- ii. Basic Drilling
- iii. Editing Drilling Toolpaths
- iv. Creating and Using Drill Groups

Knowledge Check Questions

Module 22. Creating Engraving Sequences

- i. Engraving on Flat and Complex Surfaces

Knowledge Check Questions

Module 23. Using the Process Manager

- i. Using Process Manager Tools
- ii. Editing Process Items
- iii. Creating New Items in the Process Manager
- iv. Creating and Using Manufacturing Templates

Knowledge Check Questions

Module 24. Creating and Post-Processing CL Data Files

- i. Creating and Post-Processing CL Data Files

Knowledge Check Questions
