ESPRIT World Conference
2017
Classes Descriptions
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What's New in ESPRIT 2017

Duration: 3 hours / Hands-on class

Topics to be discussed:

• System enhancements
  ○ New! Faster toolpath calculation times
  ○ New! Rendering of rapid tool motion
  ○ New! Enhanced CAD to CAM interchange

• Feature enhancements
  ○ New! Faster editing of features
  ○ New! Better recognition of custom holes and their properties

• Tooling enhancements
  ○ New! Better support for machines with a tilted turret axis

• Turning enhancements
  ○ New! Enhanced tool positioning for lathe contouring

• Milling enhancements
  ○ New! Upgraded performance in ProfitMilling™
  ○ New! Smarter Facing with stock automation
  ○ New! Enhanced stock automation for Pocketing and Contouring

• 3D Mold milling enhancements
  ○ New! Expanded support for solid digitizing of FreeForm Z limits
  ○ Sophisticated New! 3-Axis Global Finishing for steep/shallow milling

• 5-Axis Mold milling enhancements
  ○ New! Expanded support for solid digitizing of FreeForm Z limits
  ○ New! Responsive Swarf toolpath computation
    - Cover gaps automatically with uninterrupted toolpath
    - Follow the ideal surface with true tangent pass extensions
    - Position the tool smoothly between irregular profiles
    - Cut internal corners more reliably with larger tools
    - Optimize "Best Fit" tool orientations on planar faces
    - Smooth the trajectory of the tool axis between convex and concave surfaces
  ○ New! Take heavier rough cuts on impellers

• Wire EDM
  ○ New! EDM Pocketing on open profiles
  ○ New! Edit Expert System data directly from ESPRIT
  ○ New! EDM Expert System now available for Manual EDMing/Agie123 machines
  ○ New! EDM Measurement Cycles for Charmilles HMI

• What’s new in the Post Processor
  ○ New! Canned cycle thread milling

• Accessories Pack improvements
CAD Model Preparation and Feature Creation

ESPRIT CAD Functions for Toolpath Generation

Duration: 1.5 hours / Hands-on class

ESPRIT 2017 offers CAD modeling tools that will make CAM programming easier and more efficient.

Topics to be discussed:
- Measure Plus
- Solid Properties Add-in
- Analysis - Curvature, Zebra, Porcupine
- Knitted Surface commands allow creation of knitted surfaces from multiple different solids
- Modify a fillet on a solid model
- Easier curve extension: Select near start/end of curve to determine extension direction
- Create bounding solids using Solid Properties
- Merge faces
- Covering
- Face extension
- Connect faces

Master Feature Creation and Modification in ESPRIT

Duration: 1.5 hours / Hands-on class

ESPRIT 2017 offers new feature creation tools. These tools will make the crucial feature creation step easier and more intuitive.

Topics to be discussed:
- New! Faster editing of features
- New! Hole Recognition: Better recognition of custom holes and their properties
- Auto Chain recognizes properties of solid bodies
- Auto chain directly from solid
- Wall Feature recognition
- Flip feature
- Reverse feature
- Propagation tools to make multiple selection quicker
- How to open edges on a manual chain
- How to modify properties of a chain to make programming easier
- Advanced tips on how to manipulate existing feature chain
SpaceClaim: Introduction to a Unique CAD Package for CAM

**Duration: 1.5 hours**

SpaceClaim is a direct modeling package that lets you quickly create models from scratch and also edit imported models from native and neutral file formats. This class will focus on the four basic tools Pull, Move, Fill, and Combine which allows users to make the majority of their geometry edits.

SpaceClaim is a valuable tool for DP Technology Application Engineers to modify and adjust CAD models.

SpaceClaim: Basic and Advanced Geometry Repair

**Duration: 1.5 hours**

When getting geometry from other sources, often times issues can be created in the file which makes it difficult to deal with prior to manufacturing. SpaceClaim has spellcheck like tools to help find/fix these geometry errors. This class will focus on identifying key issues found in models as well as ways to repair these into valid models for manufacturing.

SpaceClaim is a valuable tool for DP Technology Application Engineers to modify and adjust CAD models.
Practical Solutions to Machining Problems

ESPRIT 2017 Accessories – Power Plus

Duration: 3 hours / Hands-on class

ESPRIT 2017 Accessories Pack is a great addition to existing ESPRIT’s functionalities. In this class, you will learn all the details about all the available features of the Accessories Pack in ESPRIT 2017.

Topics to be discussed:
Major Accessories Pack Components:
• Accessories Add-In
  ○ New! Integration and enhancement of previous Monster add-in toolbars and commands:
    Monster Dimensioning, Layers and Planes, Manipulation and Transformations.
  ○ New! Integration and enhancement of previous EDM Features toolbar and commands.
  ○ New! Integration and enhancement of previous Group Manager.
  ○ Turning Insert Pullout: Retract your turning tool to check or change inserts at given distance or number of passes
• Excel Report Generator
• MeasurePlus
• Notes Editor
• Solid Properties
  ○ New! Various enhancements.
• Station Solid Simulation
• Tool Editor
• Turning Work Coordinates

Other Accessories Pack Components:
• Advanced Sorting
• Advanced Time Study
• Custom Setting Caption Manager
• eMerge
• ESPRIT File Manager
  ○ New! Enhancements for pattern searching for file names.
• FreeForm Feature Copier
• Jaw Spinner
  ○ New! Enhancements to check machine setup and improve reliability.
• Part Configuration Manager
  ○ New! Various enhancements.
• Post Test Automation
• Renumber Tools
• Spinning Turning Tool
• Steady Rest Editor
  ○ New! Enhancements for multi-channel and to improve reliability.
• Tombstone Manager
• Tool Editor
• VBA Project Manager
Tips, Tricks and Hidden Gems
Duration: 1.5 hours / Hands-on class
We will show you the tips, tricks and hidden techniques that will make programming ESPRIT 2017 faster and easier and you may not even know many of them existed. This fun class shows you time-saving techniques guaranteed to boost your productivity.

ProfitMilling™ and ProfitTurning™ Technologies
Duration: 3 hours / Hands-on class
A big benefit of modern machine tools is the implementation of high-speed machining (HSM). Delve into the toolpath options in ESPRIT 2017 plus learn about settings on the machine tool that can be adjusted to unlock the potential of your machine. These technologies will cut down on your cycle times while dramatically increasing tool life.

We called it Profit for a reason. This class may easily pay for your World Conference’s tuition on its own.

Topics to be discussed:
• ProfitMilling™ how-to
• Differentiate ProfitMilling™, Trochoidal and conventional milling
• ProfitMilling™ enhancement in ESPRIT 2017
  ○ New! Upgraded performance in ProfitMilling™
• ProfitTurning™: Trochoidal turning strategies to significantly decrease cycle times and improve tool life
  ○ ProfitTurning™ in SolidTurn Roughing
  ○ ProfitTurning™ in SolidTurn Grooving

Understanding 5-Axis Work Offset Transformations
Duration: 1.5 hours / Seminar
With so many 5-axis work offset transformations available, each having their own advantages, it can be sometimes difficult to know which option is better suited to meet your manufacturing needs. This class visually explains how each transformation works and their limitations/strengths.

At the end of this class you will be able to:
• Understand the coordinate behavior for each transformation
• Understand how some transformations can be configured by machine parameters
• Know that not all transformations are created equal
• Understand that depending on the part and level of control needed, dictates which transformation is the better option for that particular application
Making the Most of Your MillTurn and Swiss Machines

**Duration: 1.5 hours / Hands-on class**

This class steps you through the thought process of utilizing your multi-tasking machine as efficiently as possible. With so many possible machining scenarios, it’s difficult to know which process will save you the most time, and money. This class takes you along as a mill-turn part is programmed from start to finish with valuable tips on how to save every second of cycle time.

At the end of this class you will be able to:

- Evaluate different scenarios to see which is more efficient
- Understand how to coordinate multiple operations to get more done in the same amount of time
- Understand how to use soft syncs to coordinate simultaneous operations on the same spindle
- Calculate the average working diameters of turning operations to see if the two are a good match for simultaneous machining
- Perform Time Study analysis

Getting the Most out of Stock Automation in ESPRIT 2017

**Duration: 1.5 hours / Hands-on class**

Many end users do not know how to take full advantage of Stock Automation. This class will focus on all the different Stock Automation concepts and strategies available in ESPRIT. You will also learn how they work together.

Topics to be discussed:

- General Stock Automation
  - New! Faster toolpath calculation times
  - Used to increase simulation productivity
  - Used for Mold operations
- Optimize your turning toolpaths with Turning Stock Automation
- Optimize your milling toolpaths with Stock Automation
  - New! Smarter Facing with stock automation
  - New! Enhanced stock automation for Pocketing and Contouring

Probing in ESPRIT 2017

**Duration: 1.5 hours / Hands-on class**

In this class, you will learn how to use the new ESPRIT’s functionality to drive your probes*. You will also see what is required in your post processor to support these new cycles.

* Note that ESPRIT Probing is a licensed option.
3D Mold Milling

Optimal Programming Techniques for 3D Mold Roughing and Finishing

Duration: 3 hours / Hands-on class

Discover what is new for 3-axis Mold milling in ESPRIT 2017. You will also learn to program parts with freeform surfaces and even simple molds by applying basic 3-axis roughing and finishing techniques.

Topics to be discussed:
- New! 3-Axis Global Finishing for steep/shallow milling
- New! Expanded support for solid digitizing of FreeForm Z limits
- Basic 3D roughing and finishing concepts
- Overview of 3D Mold operations
- Walk through programming an example 3D milling part

5-Axis Mold Milling

Basic 5-Axis Mold Roughing and Finishing

Duration: 3 hours / Hands-on class

Learn to program parts with complex surfaces by applying basic 5-axis roughing and finishing techniques.

Topics to be discussed:
- Overview of the 5-Axis functions available on the Mold toolbars
- General 5-Axis machining and programming concepts
- How to create 4-Axis and 5-Axis Mold Z-Level Roughing operations
- How to create 4-Axis and 5-Axis Mold Composite finishing operations
- Understand Composite Toolpath Pattern strategies
- Understand Composite Tool Orientation strategies
- Understand Mold 5-Axis Links settings
- Toolpath verification and simulation techniques

Advanced 5-Axis Mold Roughing and Finishing

Duration: 3 hours / Hands-on class

This session will focus on advanced strategies and new enhancements for 5-axis machining.

Topics to be discussed:
- How to create a Mold 5-Axis Swarf Operation
- Understand the Mold 5-Axis Swarf Profile Synchronization strategies
- New! Responsive Swarf toolpath computation
- How to use Mold 5-Axis Contouring to create 5-axis chamfering
- How to create a Mold 5-Axis Spiral Roughing operation
- How to create a Mold 5-Axis Spiral Finishing operation
Milling

Optimal Programming Techniques for Milling in ESPRIT 2017

Duration: 1.5 hours / Hands-on class

In this class, you will learn the best way to program milling parts in ESPRIT 2017. We will program a part from beginning to end highlighting new and existing functions that will hone your day to day programming skills.

Topics to be discussed:

- Getting your part ready to program
- Setting up simulation solids
- Setting up work coordinates
- Add tool holders to simulation with tool model setting
- Create features with a variety of feature creation functions
- New! Faster editing of features
- New! Smarter Facing with stock automation
- New! Enhanced stock automation for Pocketing and Contouring
- Choose the best operation for the job
- Utilize expressions to automate operation settings
- Rendering of rapid tool motion
- Adjusting simulation parameters for the best simulation experience

MillTurn

Optimal Programming Techniques for MillTurn in ESPRIT 2017

Duration: 1.5 hours / Hands-on class

In this class, you will learn the best way to program MillTurn parts in ESPRIT 2017. We will program a part from beginning to end highlighting new and existing functions that will hone your day to day programming skills.

Topics to be discussed:

- Getting your part ready to program
- Setting up simulation solids
- Setting up work coordinates
- Add tool holders to simulation with tool model setting
- Create features with a variety of feature creation functions
- New! Faster editing of features
- New! Enhanced stock automation for Pocketing and Contouring
- Choose the best operation for the job
- Utilize expressions to automate operation settings
- Syncing operations to optimize the process
- Adjusting simulation parameters for the best simulation experience
Post Processor

Introduction to Post Processor Development

Duration: 1.5 hours / Seminar

In this class, you will learn the basics of how ESPRIT post processors output NC code. You will also learn an easy way to verify post processor’s output using the Post Test Automation utility.

Topics to be discussed:
• Philosophy of DP Technology in regards to post processors
• Concepts and mechanics of post processor in ESPRIT
• Learn to use the Post Test Automation utility

Post Processor Workshop

Duration: 1.5 hours / Q&A Session

Do you have a specific post question or problem? Come join DP Technology’s best post writers to ask any post questions you have. This roundtable should bring an answer to your post development problems.

Machine Tools Specialists Workshops

Milling Programming Techniques for DMG MORI

Duration: 1.5 hours / Hands-on class and Q&A Session

Topics to be discussed:
• Showcasing all ESPRIT / DMG MORI solutions
• Interact with DP’s DMG MORI product development engineers
• Program a milling part and review DMG MORI specific machine settings to create accurate NC code

MillTurn Programming Techniques for DMG MORI

Duration: 1.5 hours / Hands-on class and Q&A Session

Topics to be discussed:
• Showcasing all ESPRIT / DMG MORI solutions
• Interact with DP’s DMG MORI product development engineers
• Program a MillTurn part and review DMG MORI specific machine settings to create accurate NC code

ESPRIT Solutions for Mazak

Duration: 3 hours / Workshop

Topics to be discussed:
• Showcasing all ESPRIT / Mazak solutions
• Interact with DP’s Mazak product development engineers
• Learn how to take the full advantage of ESPRIT to easily program your Mazak machine. Learn how to configure ESPRIT so it seamlessly handshakes with your Mazak machine parameters.
Milling Programming Techniques for Okuma

Duration: 1.5 hours / Hands-on class and Q&A Session

Topics to be discussed:
• Showcasing all ESPRIT / Okuma solutions
• Interact with DP’s Okuma product development engineers
• Program a milling part and review Okuma specific machine settings to create accurate NC code

MillTurn Programming Techniques for Okuma

Duration: 1.5 hours / Hands-on class and Q&A Session

Topics to be discussed:
• Showcasing all ESPRIT / Okuma solutions
• Interact with DP’s Okuma product development engineers
• Program a MillTurn part and review Okuma specific machine settings to create accurate NC code

Swiss Best Programming Practices

Duration: 3 hours / Hands-on class

Learn how to take the full advantage of ESPRIT to easily program your Swiss machine. Learn how to configure ESPRIT so it seamlessly handshakes with your Swiss machine parameters.

Express Your Opinion

ESPRIT Future Development – Customer’s Point of View

Duration: 1.5 hours / Q&A session

Come join some of the DP Technology Application Engineers and R&D Product Managers to bring up your ideas and concepts to improve ESPRIT. Voice your opinion and make a difference. Help us develop the future of ESPRIT.
Productivity Tools

Capture and Use Your Machining Knowledge to Become More Efficient

**Duration: 1.5 hours / Hands-on class**

In this class, you will learn how to use the out of the box functions that will increase your programming efficiency.

Topics to be discussed:
- Save and reuse processes using the Process Manager in ESPRIT
- Cutting Tools Manager
- Tool Groups
- Sorting and filtering tools
- Speeds Feeds Manager
- Setting up speed/feed data and preferred feed rates
- Graphing speed/feed data
- Using speed/feed data in ESPRIT
- Understand CAD manufacturing attributes through feature exchange (FX Technology)
- Hole FX Recognition from native CAD features
- Saving templates and creating economy of scale

Automate Programming in ESPRIT

**Duration: 1.5 hours / Hands-on class**

Do you want to boost your productivity and avoid costly human error? Find out how ESPRIT KnowledgeBase can help you capture and store knowledge about the actual conditions on your shop floor. This introductory class shows the fundamentals of storing and accessing shop floor data in ESPRIT KnowledgeBase.

Topics to be discussed:
- Identify and use part and feature families for more efficiency and reliability
- Automatic feature recognition in ESPRIT
- Create rules of manufacturing for your environment
- How to set up and store machining processes
- Define user specific Default Technology settings
- Process Manager in ESPRIT

Increase Productivity with Expressions

**Duration: 1.5 hours / Hands-on class**

Learn how to utilize Expression in ESPRIT: They will make your programming life easier! "Less Clicks More Chips!"

Example: Entering a value in one field can update ten.
MachiningCloudApp: Tool Selection Made Easy

Duration: 1.5 hours / Hands-on class

Cloud technology connects manufacturers to tooling data on a network of remote servers hosted on the Internet. Cutting tools and tooling assemblies can be accessed via desktop computer or tablet and downloaded to ESPRIT.

Topics to be discussed:
• Overview of MachiningCloud App
• Export process lists from ESPRIT using MachiningCloud Connect Add-In
• Use process list from ESPRIT to create Job Tool List in MachiningCloud App
• Import Job Tool List in ESPRIT using MachiningCloud Connect Add-In
• Use 3D tool and tool holder models in ESPRIT’s "virtual twin" simulation

Tool Management Add-in by ZOLLER

Duration: 1.5 hours

A representative from ZOLLER will discuss an ESPRIT add-in that works with ZOLLER tool management software. ZOLLER specializes in tool presetting, measuring, inspection and management.

API

Introduction to VBA Macros

Duration: 1.5 hours / Seminar

This class introduces you to VBA macros in ESPRIT. Learn where to find macros on the ESPRIT Web, what macros are available and how to import them and use tools such as the VBA Project Manager. You will see the value and power of customizing ESPRIT to fit your needs.

At the end of this class you will be able to:
• Run macros and add entries for them to menus and/or toolbars using available templates
• Debug and fix the most common problems encountered when adding macros
• Utilize and manage macros more effectively
API (Application Programming Interface) Essentials

Duration: 3 hours / Seminar

API Essentials: the essentials that every serious macro writer and developer needs to know to work with the ESPRIT API.

At the end of this class you will be able to:
• Understand the ESPRIT API hierarchy and how navigate it
• Make use of API collections and their common member syntax (Add, Count, Item, etc.) to interrogate the ESPRIT document and create new items
• Know how to work with some of the more important ESPRIT API object classes such as Features, Technology, and Operations
• See how the API is organized and have a basic understanding of what each type library is for and how to search them.
• Have a better idea of what API events are and how to implement them
• Use the Add-In Wizard to create an example add-in and grasp the basic steps for creating and installing add-ins (requires at least an Express Edition of Microsoft Visual Studio)

Prerequisite for this class: attendees should already have some familiarity with VBA macros and with using the Visual Basic (VBA) editor. Some knowledge of VBA syntax and basic programming concepts (e.g. logic and looping) is also recommended. Users wanting to work with add-ins should download and install an Express Edition of Microsoft Visual Studio prior to the conference).

Wire EDM

Wire EDM in ESPRIT 2017

Duration: 1.5 hours / Hands-on class

This class describes the basic skills needed to boost your productivity in EDM programming. What’s new in ESPRIT 2017 for Wire EDM will also be covered.

Topics to be discussed:
• What’s new in ESPRIT 2017:
  ○ New! EDM Pocketing on open profiles
  ○ New! Edit Expert System data directly from ESPRIT
  ○ New! EDM Expert System now available for Manual EDMing/Agie123 machines
  ○ New! EDM Measurement Cycles for Charmilles HMI
• Effortlessly generate NC code using simple recommended guidelines
• Create a basic EDM feature
• Effectively use EDM Feature Recognition: Use of solids
• Quickly perform the face selection process from solid models in preparation for EDM Feature Recognition
• Generate combinations of Land and Taper machining
• Perform unattended operations using the Advanced Sorting process
• Prevent undercuts on internal corners
• Generate slug retention profiles
• Program a rotary axis
• Quickly program extrusion or progressive dies using CAD solids
ESPRIT The Next Generation

Introduction to ESPRIT TNG

Duration: 1.5 hours / Hands-on class

ESPRIT TNG has a fresh new look with a ribbon interface, separate windows to view your part and your machine, a Heads-up View toolbar, and work panes that are easily shown, hidden, docked, and pinned to give you maximum screen space to view your work. All ESPRIT options are now located in a central repository and new functions have been added to import and export files.

The previous Operation Manager has been replaced with two new managers. The Part Operation Manager lets you manage operations at the part level, while the Machine Operation Manager and new Links calculator let you manage operations at the machine level. This is especially useful for production machining of multiple workpieces.

What’s New in ESPRIT TNG

Duration: 1.5 hours / Seminar

This class will cover all the new features added in ESPRIT TNG since the last ESPRIT World Conference.

Post processor enhancements will also be covered.

Production Milling in ESPRIT TNG

Duration: 1.5 hours / Hands-on class

In this class, you will learn how to efficiently program production milling in ESPRIT TNG.

Topics to be discussed:
• Easy work piece mounting
• Multiple part definition/setups in a single file
• Learn how ESPRIT TNG easily supports multiple part occurrences
• Automatically optimize your program to minimize tool changes and rotary positioning
Machine Driven Programming in ESPRIT TNG

**Duration: 1.5 hours / Hands-on class**

Topics to be discussed:
- Work Offset
  - New Work Offset UI
    - Work Offset Type
    - Rotary Support
    - Save Angle in Work Offset
  - Transformations now controlled at the operation level
    - Translate
    - Dynamic
    - Rotate
      - Digitizing local shift
      - Automatic Rotation
  - RTCP
    - Default Work Offset Transformations provide a safe solution
- Links
  - Define what is a Link
  - Link recovery strategies
  - Configuring links
  - Advanced link strategies - RTCP links
  - Emulating machine specific parameters
  - Defining tool change and rotary positions - A more accurate simulation

Milling Fundamentals in ESPRIT TNG

**Duration: 3 hours / Hands-on class**

In this class, you will learn the fundamental workflow for programming milling parts in ESPRIT TNG and discover all the new milling functions.

MillTurn Fundamentals in ESPRIT TNG

**Duration: 3 hours / Hands-on class**

In this class, you will learn the fundamental workflow for programming MillTurn parts in ESPRIT TNG and discover all the new MillTurn functions.

Topics to be discussed:
- Loading your part and setting up your workpiece
- Turning Feature Recognition
- Create milling and turning operations
- How to toggle milling operations between fixed or rotary machining
- New view functions for lathe programming and simulation
- Workpiece transfer and setup changes for multi-spindle
- Automatic operation sorting
Wire EDM Fundamentals in ESPRIT TNG

Duration: 1.5 hours / Hands-on class

In this class, you will learn the fundamental workflow for programming Wire EDM parts in ESPRIT TNG and discover all the new Wire EDM functions.

Boot Camp

Boot Camp

Duration: All week / Hands-on training

New to ESPRIT? This is the class for you. You will learn all the basic skills (and more) to get you going on the most powerful CAM software ever. This will cover milling and MillTurn applications.

1-On-1

1-On-1

Duration: 1.5 hours / Q&A session

Sign up for a 1-On-1 session to spend an hour and a half with one of DP Technology’s best Application Engineers. You can ask ESPRIT specific questions, post processor questions or even API questions.

1-On-1 sessions are available every day during class hours and are limited to 2 people per session.