TRAININGS FOR DELMIA

Version 1.0

Agenda for DELMIA training courses

cenit

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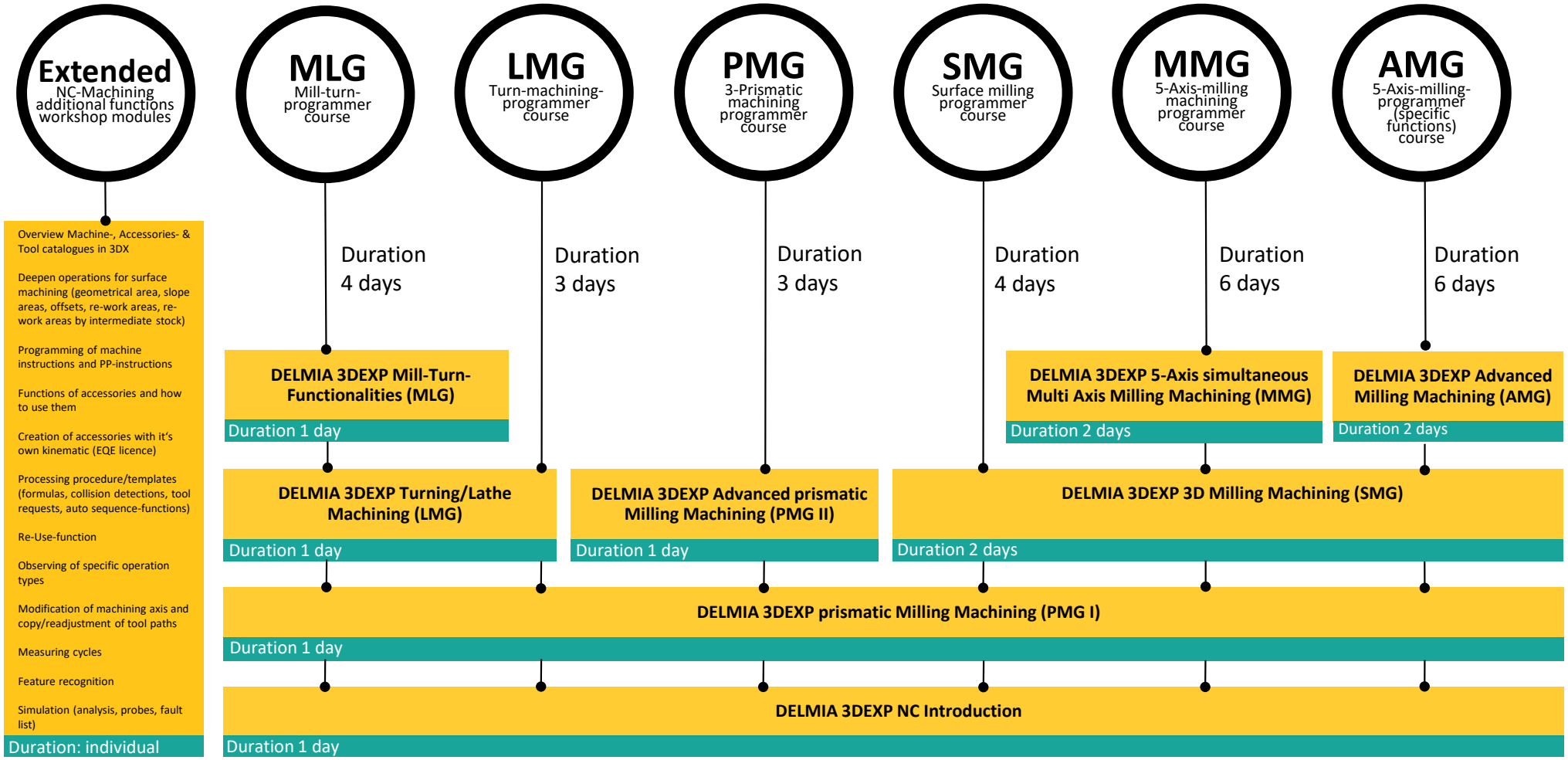
MACHINING TRAINING OVERVIEW



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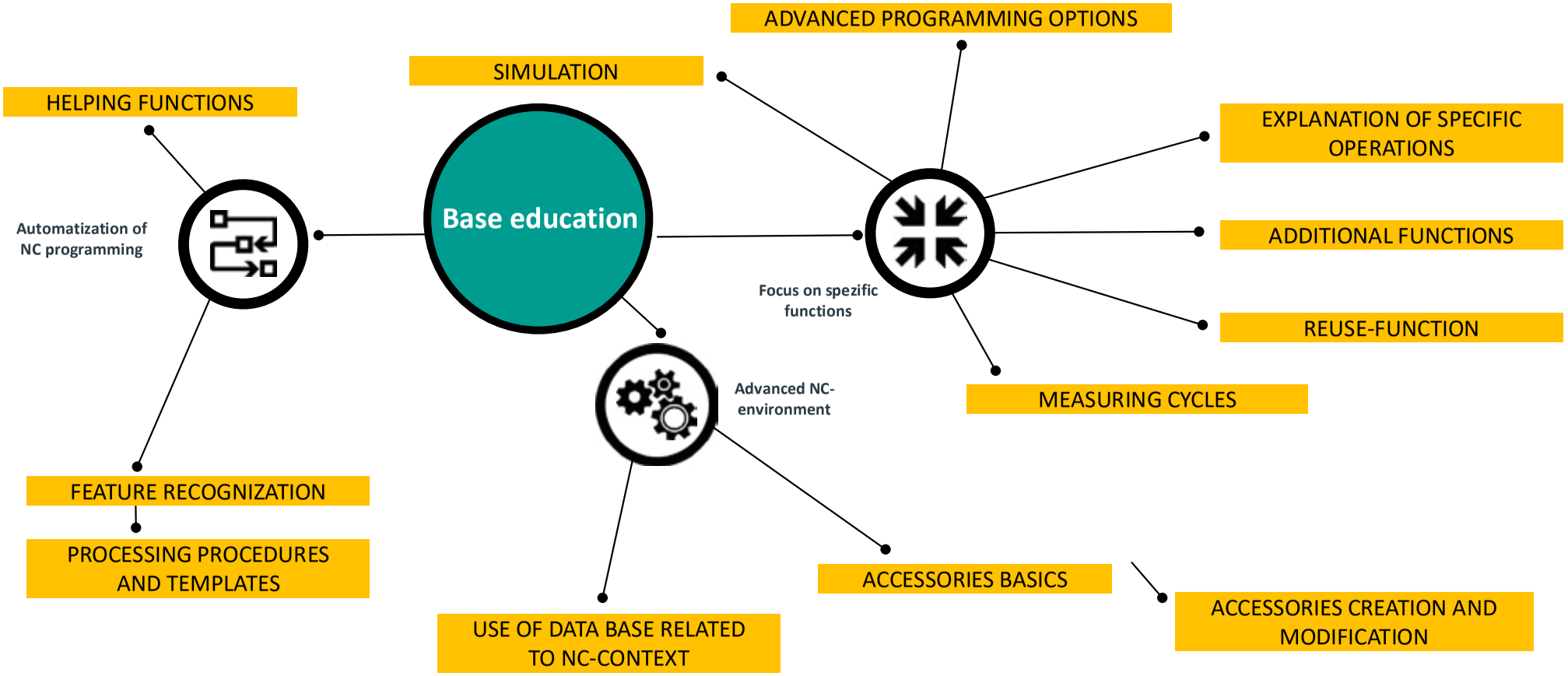
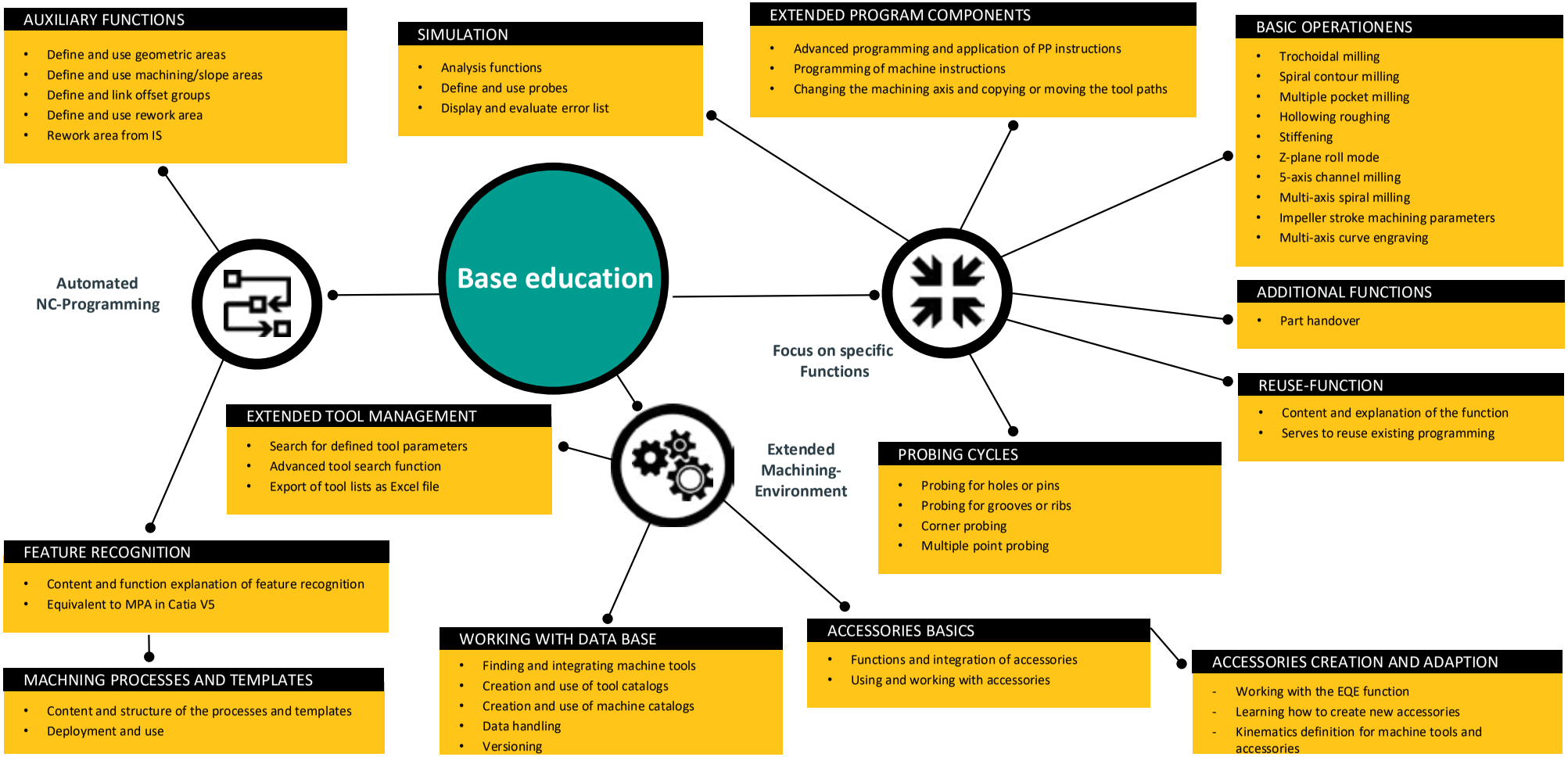
EXPAND WITH DELMIA MACHINING - TRAINING EXTENSION APPROACH



TRAINING EXTENSION – WORKSHOP MODULES



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1. DELMIA CAM-Trainings

1.1. MLG mill-turn programmer course

Objectives

- DELMIA 3DEXP NC Introduction

- DELMIA 3DEXP prismatic Milling Machining (PMG I)
  - Basics of the structure of operations
  - Generation of prismatic milling operations (contour, pocket)
  - Programming of drill cycles
  - Usage and creation of macros (approach, link)
  - Use of tool databases
  - Simulation

- DELMIA 3DEXPMill-Turn-Functionalities (MLG),
  DELMIA 3DEXP Turn-ing/Lathe Machining (LMG)
  - Generation of turning operations (roughing, finishing, grooving recess-ing, etc.)
  - Definition of recurring machining sequences
  - Use of tool databases
  - Working with tool lists
  - Generation of complete programs including tool changes, macros, rota-tions, etc.
  - Simulation, analysis and documentation of single machining operations and complete programs

Target audience

Manufacturing Engineers, NC Programmer

Training goal

- Education of entire prismatic machining functionalities
- Education on turning machining functionalities
- Milling and Turning combined programs

Knowledge

- 3DEXP01 “Gateway to the 3DEXPERIENCE Platform”
- 3DEXP05 “CATIA Generative Shape Design Essentials”

Course-ID

Classroom training:
Virtual training:

Duration

4 Days

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1. DELMIA CAM-Trainings

1.2. LMG turn-machining programmer course

Objectives

- DELMIA 3DEXP NC Introduction

- DELMIA 3DEXP prismatic Milling Machining (PMG I)
  - Basics of the structure of operations
  - Generation of prismatic milling operations (contour, pocket)
  - Programming of drill cycles
  - Usage and creation of macros (approach, link)
  - Use of tool databases
  - Simulation

- DELMIA 3DEXP Turning/Lathe Machining (LMG)
  - Generation of turning operations (roughing, finishing, grooving recess-ing, etc.)
  - Definition of recurring machining sequences
  - Use of tool databases
  - Working with tool lists
  - Generation of complete programs including tool changes, macros, rota-tions, etc.
  - Simulation, analysis and documentation of single machining operations and complete programs

Target audience

Manufacturing Engineers, NC Programmer

Training goal

- Education of entire prismatic machining functionalities
- Education on turning machining functionalities
- Milling and Turning combined programs

Knowledge

- 3DEXP01 “Gateway to the 3DEXPERIENCE Platform”
- 3DEXP05 “CATIA Generative Shape Design Essentials”

Course-ID

Classroom training:
Virtual training:

Schulungsdauer

3 Days

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1. DELMIA CAM-Trainings

1.3. PMG 3-prismatic machining programmer course

Objectives

- DELMIA 3DEXP NC Introduction
- DELMIA 3DEXP prismatic Milling Machining (PMG I)
  - Basics of the structure of operations
  - Generation of prismatic milling operations (contour, pocket)
  - Programming of drill cycles
  - Usage and creation of macros (approach, link)
  - Use of tool databases
  - Simulation
- DELMIA 3DEXP Advanced prismatic Milling Machining (PMG II)
  - Generation of prismatic milling operations (open pockets, gravures, on surfaces), conventional and HSC-compatible
  - Definition of recurring machining sequences
  - Auxiliary functions like reworking areas
  - Generation of complete programs incl. tool changes, macros, rotations, ...
  - Simulation, analysis and documentation of single machining operations and complete programs

Target audience

Manufacturing Engineers, NC Programmer

Training goal

- Education of entire prismatic machining functionalities
- 3- axis plus inclined plane operations for prismatic geometries

Knowledge

- 3DEXP01 “Gateway to the 3DEXPERIENCE Platform”
- 33DEXP05 “CATIA Generative Shape Design Essentials”

Course-ID

Classroom training:
Virtual training:

Duration

3 Days

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1. DELMIA CAM-Trainings

1.4. SMG surface milling programmer course

Objectives

- DELMIA 3DEXP NC Introduction

- DELMIA 3DEXP prismatic Milling Machining (PMG I)
  - Basics of the structure of operations
  - Generation of prismatic milling operations (contour, pocket)
  - Programming of drill cycles
  - Usage and creation of macros (approach, link)
  - Use of tool databases
  - Simulation

- DELMIA 3DEXP 5-Axis Milling Machining (SMG)
  - Generation of roughing operations incl. roughing of residual stock
  - Programming of 3D finishing operations (z-constant, parallel-plane, con-tour-guided, etc.)
  - Milling of grooves
  - Determination and machining of residual stock
  - Definition of recurring machining sequences
  - Definition of HSC-compatible programs
  - Programming of positioning axes (3+2-axis machining and SMG auto-matic 5-axis milling)
  - Simulation, analysis and documentation of individual machining operations and complete programs

Target audience

Manufacturing Engineers, NC Programmer

Training goal

- 3+2-axis surface machining explanation
- Axis setting options explanation

Knowledge

- 3DEXP01 “Gateway to the 3DEXPERIENCE Platform”
- 3DEXP05 “CATIA Generative Shape Design Essentials”

Course-ID

Classroom training:
Virtual training:

Duration

4 Days

1. DELMIA CAM-Trainings

1.5. MMG 5 axis milling programmer course

Objectives

- DELMIA 3DEXP NC Introduction

- DELMIA 3DEXP prismatic Milling Machining (PMG I)
  - Basics of the structure of operations
  - Generation of prismatic milling operations (contour, pocket)
  - Programming of drill cycles
  - Usage and creation of macros (approach, link)
  - Use of tool databases
  - Simulation

- DELMIA 3DEXP 5-Axis Milling Machining (SMG)
  - Generation of roughing operations incl. roughing of residual stock
  - Programming of 3D finishing operations (z-constant, parallel-plane, con-tour-guided, etc.)
  - Milling of grooves
  - Determination and machining of residual stock
  - Definition of recurring machining sequences
  - Definition of HSC-compatible programs
  - Programming of positioning axes (3+2-axis machining and SMG auto-matic 5-axis milling)
  - Simulation, analysis and documentation of individual machining operations and complete programs

- DELMIA 3DEXP 5-Axis simultaneous Multi Axis Milling Machining (MMG)
  - Explanation of 5-axis simultaneous machining operations, including:
  - 5-axis contour milling
  - 5-axis surface milling (5-axis copy milling, ISO milling, contour driven surface milling, etc.)
  - Helix machining and groove milling
  - 5-axis flank contour milling (MMG)
  - Methods for controlling the tool axis (normal, tangent, deviation angles)
  - Advanced selection of complex surfaces

Target audience

Manufacturing Engineers, NC Programmer

Training goal

- Education on 3+2 axis prismatic and surface milling operation
- Explanation of 5-axis simultaneous machining operations
- Explanation of advanced axis setting options

Knowledge

- 3DEXP01 “Gateway to the 3DEXPERIENCE Platform”
- 3DEXP05 “CATIA Generative Shape Design Essentials”

Course-ID

Classroom training:
Virtual training:

Duration

6 Days

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1. DELMIA CAM-Trainings

1.6. AMG 5 axis milling programmer course (specific functions course)

Objectives

- DELMIA 3DEXP NC Introduction

- DELMIA 3DEXP prismatic Milling Machining (PMG I)
  - Basics of the structure of operations
  - Generation of prismatic milling operations (contour, pocket)
  - Programming of drill cycles
  - Usage and creation of macros (approach, link)
  - Use of tool databases
  - Simulation

- DELMIA 3DEXP 5-Axis Milling Machining (SMG)
  - Generation of roughing operations incl. roughing of residual stock
  - Programming of 3D finishing operations (z-constant, parallel-plane, con-tour-guided, etc.)
  - Milling of grooves
  - Determination and machining of residual stock
  - Definition of recurring machining sequences
  - Definition of HSC-compatible programs
  - Programming of positioning axes (3+2-axis machining and SMG auto-matic 5-axis milling)
  - Simulation, analysis and documentation of individual machining operations and complete programs

- DELMIA 3DEXP 5-Axis simultaneous Axis Milling Machining (AMG)
  - Explanation of 5-axis simultaneous machining operations, including:
  - 5-axis contour milling
  - 5-axis surface milling (5-axis copy milling, ISO milling, contour driven surface milling, etc.)
  - Helix machining and groove milling
  - 5-axis flank contour milling (AMG extent)
  - Methods for controlling the tool axis (normal, tangent, deviation angles)
  - Advanced selection of complex surfaces

Target audience

Manufacturing Engineers, NC Programmer

Training goal

- Education on 3+2 axis prismatic and surface milling operation
- Explanation of 5-axis simultaneous machining operations
- Explanation of advanced axis setting options

Knowledge

- 3DEXP01 “Gateway to the 3DEXPERIENCE Platform”
- 3DEXP05 “CATIA Generative Shape Design Essentials”

Course-ID

Classroom training:
Virtual training:

Duration

6 Days

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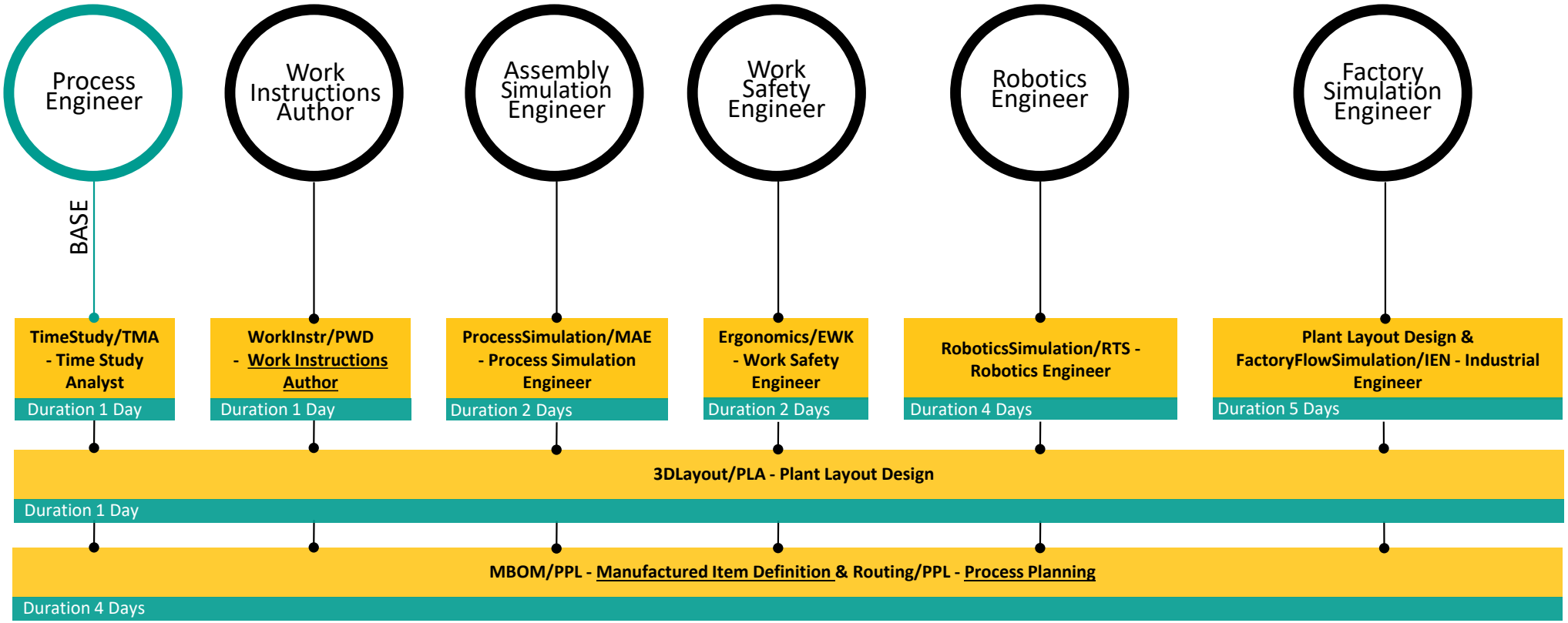
WORKSHOPS OVERVIEW
SEQUENCE OF THE TRAININGS



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2. DELMIA Industrial Engineering-Trainings

2.1. Process engineer

Objectives

- Manufactured Items Manager
  - Define the Manufactured Item Structure (MBOM) directly from the 3D design data
  - Creation of the Manufactured Items Structure (MBOM)
  - Manage update of the MBOM
- Manufacturing Process Management
  - Define Manufacturing Process Plans (Routings)
  - Optimizing workload and resource utilization
  - Check and validate Manufacturing Process Plans
  - Feeding downstream stakeholders and minimizing rework
- Equipment Allocation
  - Assigning resources to operations (Completing the PPR links)
  - Check and validate Resource Allocation
  - Optimize workload based on Resources
- Plant Layout DESIGN
  - Fast and efficient layout definition
  - Early discovery of layout problems such as collisions
  - Create 3DLayouts based on 2D Drawing (Floor/Factory Plan)
  - Create 3DLayouts based on Catalog Objects (With focus on ReUse)
  - Create 3DLayouts based on Scanned Objects as Points Cloud
- Time Motion Study
  - Optimize the total productivity of workers and efficiency of the production system
  - Rebalance the workload for each worker, anticipate and reduce fatigue, and maximize the production rate
  - Define and re-use accurate time analysis based on well-known industry standards such as for example MOST, MTM1, MTM2, UAS, and SAM

Target audience

Process Planner

Training goal

- Creating - MBOM & Routings
- Creation, Update & Validate - MBOM & Routings
- Creating 3DLayouts using 2D Drawings or Scanned Objects as Points Cloud
- Defining Time Studies

Knowledge

3DExperience OnBoarding

Course-ID

Classroom training:
Virtual training:

Duration

6 Days
4 days MBOM/PPL - Manufactured Item Definition & Routing/PPL - Process Planning
1 Day 3D Layout/PLA Plant Layout Design,
1 Day Time Study/TMA Time Study Analyst

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2. DELMIA Industrial Engineering-Trainings

2.2. Work instructions author (WKS, PND & WKB)

Objectives

- Manufactured Items Manager
  - Define the Manufactured Item Structure (MBOM) directly from the 3D design data
  - Creation of the Manufactured Items Structure (MBOM)
  - Manage update of the MBOM
- Manufacturing Process Management
  - Define Manufacturing Process Plans (Routings)
  - Optimizing workload and resource utilization
  - Check and validate Manufacturing Process Plans
  - Feeding downstream stakeholders and minimizing rework
- Equipment Allocation
  - Assigning resources to operations (Completing the PPR links)
  - Check and validate Resource Allocation
  - Optimize workload based on Resources
- Plant Layout DESIGN
  - Fast and efficient layout definition
  - Early discovery of layout problems such as collisions
  - Create 3DLayouts based on 2D Drawing (Floor/Factory Plan)
  - Create 3DLayouts based on Catalog Objects (With focus on ReUse)
  - Create 3DLayouts based on Scanned Objects as Points Cloud
- Work Instructions
  - Detail and document any process from simple assembly prototyping to complex manufacturing or maintenance processes
  - Creating work instructions using 3D annotations to describe a job and how to do it
  - Delivery of work instructions to the shop floor through a manufacturing execution system (MES), HTML, or printed material
- Shop Floor Operator
  - View work Instructions in browser-accessible format
  - Ensure instructions are up-to-date and accurate by eliminating printed materials
  - View the complete instruction details in web format

Target audience

Planner

Training goal

- Creating - MBOM & Routings
- Creation, Update & Validate - MBOM & Routings
- Creating 3DLayouts using 2D Drawings or Scanned Objects as Points Cloud-Defining Work Instructions

Knowledge

3DExperience OnBoarding

Course-ID

Classroom training:
Virtual training:

Duration

6 Days
4 days MBOM/PPL - Manufactured Item Definition & Routing/PPL - Process Planning
1 Day 3D Layout/PLA Plant Layout Design,
1 Day Work Instructions Author, Shop Floor Operator

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2. DELMIA Industrial Engineering-Trainings

2.3. Assembly simulation engineer (MAE)

Objectives

- Manufactured Items Manager
  - Define the Manufactured Item Structure (MBOM) directly from the 3D design data
  - Creation of the Manufactured Items Structure (MBOM)
  - Manage update of the MBOM
- Manufacturing Process Management
  - Define Manufacturing Process Plans (Routings)
  - Optimizing workload and resource utilization
  - Check and validate Manufacturing Process Plans
  - Feeding downstream stakeholders and minimizing rework
- Equipment Allocation
  - Assigning resources to operations (Completing the PPR links)
  - Check and validate Resource Allocation
  - Optimize workload based on Resources
- Plant Layout DESIGN
  - Fast and efficient layout definition
  - Early discovery of layout problems such as collisions
  - Create 3DLayouts based on 2D Drawing (Floor/Factory Plan)
  - Create 3DLayouts based on Catalog Objects (With focus on ReUse)
  - Create 3DLayouts based on Scanned Objects as Points Cloud
- Assembly Evaluation
  - Determine assembly or disassembly feasibility in 3D early in the design phase
  - Determine assembly feasibility of manufactured parts
  - Interactively create assembly trajectories
  - Easily edit and modify trajectory paths

Target audience

Assembly Planner

Training goal

- Creating - MBOM & Routings
- Creation, Update & Validate - MBOM & Routings
- Creating 3DLayouts using 2D Drawings or Scanned Objects as Points Cloud
- Perform product assembly feasibility studies in 3D

Knowledge

3DExperience OnBoarding

Course-ID

Classroom training:
Virtual training:

Duration

7 Days
4 days MBOM/PPL - Manufactured Item Definition & Routing/PPL - Process Planning
1 Day 3D Layout/PLA Plant Layout Design,
2 Day ProcessSimulation/MAE - Process Simulation Engineer

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2. DELMIA Industrial Engineering-Trainings

2.4. Work safety engineer (EWK)

Objectives

- Manufactured Items Manager
  - Define the Manufactured Item Structure (MBOM) directly from the 3D design data
  - Creation of the Manufactured Items Structure (MBOM)
  - Manage update of the MBOM

- Manufacturing Process Management
  - Define Manufacturing Process Plans (Routings)
  - Optimizing workload and resource utilization
  - Check and validate Manufacturing Process Plans
  - Feeding downstream stakeholders and minimizing rework

- Equipment Allocation
  - Assigning resources to operations (Completing the PPR links)
  - Check and validate Resource Allocation
  - Optimize workload based on Resources

- Plant Layout DESIGN
  - Fast and efficient layout definition
  - Early discovery of layout problems such as collisions
  - Create 3DLayouts based on 2D Drawing (Floor/Factory Plan)
  - Create 3DLayouts based on Catalog Objects (With focus on ReUse)
  - Create 3DLayouts based on Scanned Objects as Points Cloud

- Ergonomics AT WORK
  - Early integration of human factors in product or workplace design
  - Avert injuries in the workplace by early identification of potential ergonomics problems
  - Capture and reuse ergonomic enterprise standards

Target audience

Safety Engineer

Training goal

- Creating - MBOM & Routings
- Creation, Update & Validate - MBOM & Routings
- Creating 3DLayouts using 2D Drawings or Scanned Objects as Points Cloud
- Create virtual workers with standard anthropometry (human body dimen-sions) to evaluate human interaction

Knowledge

3DExperience OnBoarding

Course-ID

Classroom training:
Virtual training:

Duration

7 Days
4 days MBOM/PPL - Manufactured Item Definition & Routing/PPL - Process Planning
1 Day 3D Layout/PLA Plant Layout Design,
2 Day Ergonomics/EWK - Work Safety Engineer

Please note our legal information on page 19.

2. DELMIA Industrial Engineering-Trainings

2.5. Robotics engineer

Objectives

- Manufactured Items Manager
  - Define the Manufactured Item Structure (MBOM) directly from the 3D design data
  - Creation of the Manufactured Items Structure (MBOM)
  - Manage update of the MBOM
- Manufacturing Process Management
  - Define Manufacturing Process Plans (Routings)
  - Optimizing workload and resource utilization
  - Check and validate Manufacturing Process Plans
  - Feeding downstream stakeholders and minimizing rework
- Equipment Allocation
  - Assigning resources to operations (Completing the PPR links)
  - Check and validate Resource Allocation
  - Optimize workload based on Resources
- Plant Layout DESIGN
  - Fast and efficient layout definition
  - Early discovery of layout problems such as collisions
  - Create 3DLayouts based on 2D Drawing (Floor/Factory Plan)
  - Create 3DLayouts based on Catalog Objects (With focus on ReUse)
  - Create 3DLayouts based on Scanned Objects as Points Cloud
- Robot simulation
  - Position resources, simulate robots, create robot trajectories, and create a complete workcell sequence
  - Define, validate, and optimize robotic processes and setups
  - Early discovery and resolution of design for manufacturing (DFM) issues

Target audience

Robot Offline Programmer

Training goal

- Creating - MBOM & Routings
- Creation, Update & Validate - MBOM & Routings
- Creating 3DLayouts using 2D Drawings or Scanned Objects as Points Cloud
- Create, simulate and validate the entire robot workcell

Knowledge

- 3DExperience OnBoarding

Course-ID

Classroom training:
Virtual training:

Duration

10 Days
4 days MBOM/PPL - Manufactured Item Definition & Routing/PPL - Process Planning
1 Day 3D Layout/PLA Plant Layout Design,
5 days RoboticsSimulation/RTS - Robotics Engineer

Please note our legal information on page 19.

2. DELMIA Industrial Engineering-Trainings

2.6. Factory simulation engineer (IEN)

Objectives

- Manufactured Items Manager
  - Define the Manufactured Item Structure (MBOM) directly from the 3D design data
  - Creation of the Manufactured Items Structure (MBOM)
  - Manage update of the MBOM

- Manufacturing Process Management
  - Define Manufacturing Process Plans (Routings)
  - Optimizing workload and resource utilization
  - Check and validate Manufacturing Process Plans
  - Feeding downstream stakeholders and minimizing rework

- Equipment Allocation
  - Assigning resources to operations (Completing the PPR links)
  - Check and validate Resource Allocation
  - Optimize workload based on Resources

- Plant Layout DESIGN
  - Fast and efficient layout definition
  - Early discovery of layout problems such as collisions
  - Create 3DLayouts based on 2D Drawing (Floor/Factory Plan)
  - Create 3DLayouts based on Catalog Objects (With focus on ReUse)
  - Create 3DLayouts based on Scanned Objects as Points Cloud

- Factory flow simulation
  - Design factory layouts, simulate, and analyse multiple production scenarios, in 3D environment
  - Early recognition and elimination of bottlenecks
  - Simulate various product scenarios to predict the production rate
  - Run “what if“ simulations to improve system performance & production rate with alternate routings, layouts, and resource pooling strategies

Target audience

Factory Planner

Training goal

- Creating - MBOM & Routings
- Creation, Update & Validate - MBOM & Routings
- Creating 3DLayouts using 2D Drawings or Scanned Objects as Points Cloud
- Design factory layouts, define and validate the behaviour of a station, a line or a complete plant

Knowledge

3DExperience OnBoarding

Course-ID

Classroom training:
Virtual training:

Duration

10 Days
4 days MBOM/PPL - Manufactured Item Definition & Routing/PPL - Process Planning
1 Day 3D Layout/PLA Plant Layout Design,
5 days Plant Layout Design & FactoryFlowSimulation/IEN - Industrial Engi-neer

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ABOUT CENIT

CENIT empowers sustainable digitalization. With a broad solutions and services portfolio, CENIT enables clients to optimize their horizontal and vertical business processes. Our solutions are based on innovative technologies in: product lifecycle management, the digital factory and enterprise information management. With interdisciplinary knowledge of the processes involved and their considerable expertise in the field, CENIT consultants provide customers with end-to-end advice to ensure that solutions are implemented with an understanding of the entire value chain.

With a holistic approach and based on trusted partnerships, CENIT takes responsibility for solutions on behalf of our clients. From the initial consultation to the introduction of innovative IT solutions, right through to ensuring a cost-effective operation. The CENIT team adapts to each client, taking a practical approach, which enables measurable operational optimizations. CENIT has been helping prestigious customers in key industries to gain competitive advantages for over 30 years.

CENIT has nearly 900 employees worldwide who work with customers from: automotive, aerospace, industrial equipment, tool and mold manufacturing, financial services, and trade and consumer products industries. **www.cenit.com**

CONTACT US

Would you like to book a training or do you have individual questions to which you need a quick answer?

We will inform you about available places and conditions.

You can book current scheduled training courses directly on our website:
Trainings for DELMIA-Portfolio (cenit.com)

Bitte Übersetzung prüfen, habe selbst übersetzt.

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