TEMARIOS DE CAPACITACIÓN.

DASSAULT SYSTEMES

MOLDEX 3D

ICAM

-DASSAULT SYSTEMES-

CATIA V5

SHAPE DESIGN

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MOLDEX3D

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MOLDING GUIDE

MOLDING GUIDE

-ICAM-

ICAM

CATIA V5 Fundamentals (V5F)

Duration: 40 hours

Level: Fundamental

Audience:
Mechanical Designers with no CATIA V5 experience

Description:
This course will teach you about CATIA V5. You Will learn how to build simple parts and assemblies in CATIA, and how to make simple drawings of those
parts and assemblies.

Objectives :
Upon completion of this course you will be able to:
- Understand and use the CATIA V5 interface
- Plan the construction of a part in order to convey its visual and functional aspects
- Create simple parts in CATIA V5
- Construct an assembly using the parts
- Produce simple drawings and assembly layouts

Prerequisites:
Students attending this course should be familiar with Mechanical Design and the Windows Operating System.

CATIA V5 Mechanical Design Expert (V5E)

Duration: 40 hours

Level: Advanced

Audience: Mechanical Designers

Description:
This course will teach you how to start a complex design project from its specifications (top down approach) and complete it by reusing existing data.
It will focus on advanced skills and concepts that enable you to create and analyze complex parts and assemblies.

Objectives:
Upon completion of this course you will be able to:
- Create a complex model in CATIA V5
- Create and manage a structured model
- Design parts in the context of an assembly
- Re-use existing data to complete assemblies
- Manage relationships between assembled parts
- Analyze and annotate your design

Prerequisites:
Students attending this course should be familiar with the basics of CATIA V5 Mechanical Design

CATIA Surface Design (GS1)

Duration: 8 hours

Level: Fundamental

Audience: Mechanical Surface Designers

Description:
This course will teach you how to use the Generative Shape Design tools. You will learn how to créate wireframes and surfaces. You will also learn about the concept of hybrid design and how to use it while creating wireframes and surfaces. This course covers only those Generative Shape Design tools that are available with a MD2 license.

Objectives:
Upon completion of this course you will be able to:
- Identify and use the tools that are specific to the Generative Shape Design workbench
- Create simple reference geometry and wireframe geometry
- Use the reference wireframe elements to créate simple surfaces
- Create a clean topology from a set of surfaces and smooth sharp edges
- Detect and correct the discontinuities on curves and surfaces
- Create solids from surfaces

Prerequisites:
Students attending this course should be familiar with CATIA V5 Fundamentals.

CATIA Generative Drafting Fundamentals

Duration: 8 hours

Level: Fundamental

Audience: Draftsmen

Description:
This course will teach you how to use the Drafting workbench of CATIA V5 to create drawings. You Will learn how to produce a drawing of a 3D model by
creating projection and section views, and how to add basic dimensions to it.

Objectives:
Upon completion of this course you will be able to:
- Create simple projection views and section views of 3D parts
- Position the views on a drawing sheet
- Add dimensions to the views
- Manage the graphic properties of the drawing sheet
- Finalize the drawing sheet by adding a title block

Prerequisites:
Students attending this course should be familiar with the basics of CATIA V5.

CATIA Detail Drafting (DDR)

Duration: 16 hours

Audience: Draftsmen

Description:
This course will teach you how to use the Drafting workbench tools to create interactive product views. You will also learn how to use advanced tools to dressup and annotate the views. Additionally, you will learn how to customize the Drafting workbench to suit your needs.

Objectives:
Upon completion of this course you will be able to:
- Create an interactive view and draw a sketch on it
- Add annotations to dress-up the view
- Use advanced dimensioning tools
- Perform 2D-3D links management
- Customize the Drafting workbench in accordance with your requirements

Prerequisites:
Students attending this course should know how to create 2D views in CATIA V5

Advanced Drafting and Customization (DRA)

Duration: 16 hours

Level: Advanced

Audience: Draftsmen, Drafting Administrators.

Description:
This course will teach you how to set and manage all dimension and annotation standards contained in the standard files according to company or projects needs.

Objectives:
Upon completion of this course you will be able to:
- Use hints and tips on Generative and Interactive drafting
- Perform administration tasks to set and manage all dimension and annotation standards
- Generate coordinate tables
- Create frames and title blocks with a macro

Prerequisites:
Students attending this course should be familiar with CATIA V5 fundamentals and VB scripting

CATIA Sketcher (SKE)

Duration: 8 hours

Level: Fundamental

Audience: Mechanical Designers

Description:
This course will teach you how to use the CATIA Sketcher workbench. You will learn how to create twodimensional sketches by drawing and constraining the various geometric elements. You will also learn how to analyze the sketches and edit them.

Objectives:
Upon completion of this course you will be able to:
- Work in the CATIA Sketcher environment
- Create 2D sketch geometry
- Analyze the sketched geometry
- Edit existing 2D profiles
- Dimension the sketch and modify it using constraints
- Manage sketches within a 3D environment

Prerequisites:
Students attending this course must have completed the CATIA V5 Fundamentals course

CATIA Part Design (PDG)

Duration: 8 hours

Level: Fundamental

Audience: Mechanical Designers

Description:
This course will teach you how to use the CATIA Part Design workbench to design 3D mechanical parts from 2D sketches. You will learn how to create and modify solid features in order to prepare 3D parts for manufacturing.

Objectives:
Upon completion of this course you will be able to:
- Design 3D mechanical parts using basic features
- Create 3D solid features based on 2D sketches
- Apply Dress-Up features to the 3D parts
- Duplicate and move the 3D features
- Modify a 3D part

Prerequisites:
Students attending this course must have completed the CATIA V5 Fundamentals and CATIA Sketcher courses.

CATIA Part Design Expert (PDG)

Duration: 12 hours

Level: Advanced

Audience: Mechanical Designers

Description:
This course will teach you how to design complex 3D mechanical parts using the Boolean approach. You Will learn how to work in a Multi-Model Environment and maintain links between your 3D models. You will also learn how to analyze your designs in order to optimize them.

Objectives:
Upon completion of this course you will be able to:
- Create a part using 3D reference elements
- Create advanced Sketch-Based Features
- Apply advanced Dress-Up Features
- Design 3D parts using Boolean operations
- Work in a Multi-Model Environment and share your designs with others
- Analyze parts and optimize them
- Annotate the parts for review

Prerequisites:
Students attending this course should have completed the CATIA V5 Fundamentals, Getting started with CATIA V5, CATIA Sketcher, and CATIA Part Design Fundamentals courses.

CATIA Product Design (ASM)

Duration: 8 hours

Level: Fundamental

Audience: Mechanical Designers

Description:
This course will teach you how to create a simple product structure and how to add existing components and position them correctly. You will learn how to add new parts and design them in the context of a product.
You will also learn how to analyze assemblies and ensure design coherence.

Objectives:
Upon completion of this course you will be able to:
- Create a new product and add components to it
- Move the components within a product by positioning them using assembly constraints
- Modify an existing product structure
- Design new parts in the context of a product
- Check the mechanical properties of a product and analyze its degrees of freedom
- Analyze interferences between parts and perform Measurements

Prerequisites:
Students attending this course should be familiar with CATIA Part Design

CATIA Product Design Expert (ASM)

Duration: 16 hours

Level: Advanced

Audience: Mechanical Designers

Description:
This course will teach you how to design parts in the context of a complex product structure using collaborative engineering methods. You will learn how to optimize CATIA's performance when working with large and complex designs. You will also learn how to generate annotations and bills of material for your assembly drawings.

Objectives:
Upon completion of this course you will be able to:
- Optimize performance for large and complex designs
- Manage contextual links between producto documents using publications
- Create and use parameters to drive a producto design
- Create sections to visualize the internal producto structure
- Create scenes and exploded views of a product
- Generate annotations and bills of material for assembly drawings

Prerequisites:
Students attending this course should be familiar with CATIA Product Design and CATIA Part Design

CATIA Generative Sheetmetal Design (SMD)

Duration: 8 hours

Level: Fundamental

Audience: Sheetmetal Designers

Description:
This course will teach you how to design a sheetmetal part using associative feature-based modeling. You Will learn how to integrate both standard and user-defined stamped features into your designs and calculate the resulting flat patterns in accordance with either the standard bend allowances or your company's bend
allowance tables.

Objectives:
Upon completion of this course you will be able to:
- Understand the terminology and the design process for creating a sheetmetal part
- Define and manage the sheetmetal part parameters
- Design walls, bends, and flanges
- Add features such as cutouts, holes, corners, and chamfers
- Create standard and user-defined stamped features
- Manage folded and unfolded views and export a finished flat pattern

Prerequisites:
Students attending this course should be familiar with CATIA V5 Fundamentals

CATIA Tools For Proficient Users (PRO)

Duration: 8 hours

Level: Fundamental

Audience: Advanced CATIA V5 Users

Description:
This course will teach you how to use advanced CATIA functions such as Catalog Edition, Powercopy Management, and User Defined Feature Management.

Objectives:
Upon completion of this course you will be able to:
- Create advanced replication features like Power Copies
- Store components and Power Copies into a catalog and reuse them in a new context
- Analyze and migrate CATIA V4 models to CATIA V5

Prerequisites:
Students attending this course should be familiar with CATIA Fundamentals and CATIA Part Design

Knowledge Advisor (KWA)

Duration: 8 hours

Level: Fundamental

Audience: CAD Engineers

Description:
This course will teach you how to embed knowledge in your designs using Knowledge Advisor tools. You Will also learn how to leverage the knowledge to reduce errors and automate the design modifications.

Objectives:
Upon completion of this course you will be able to:
- Create and use User Parameters and Formulae
- Create Rules, Checks and Reactions to control the design
- Create and use Design Tables to automate the design modifications
- Use miscellaneous Knowledge Advisor tools

Prerequisites:
Students attending this course should be familiar with the basics of CATIA V5.

Product Knowledge Template (PKT)

Duration: 8 hours

Level: Fundamental

Audience: CAD Engineers, Knowledge Engineers.

Description:
This course will teach you how to create and store interactive features and then reuse and adapt them to a new context.

Objectives:
Upon completion of this course you will be able to:
- Create and reuse Power Copies and User Defined Features.
- Create and reuse advanced instantiation features like Knowledge Pattern.
- Create Part and Assembly Templates and reuse them in a new context.

Prerequisites:
Students attending this course should be familiar with the basics of CATIA V5 and knowledgeware.

Knowledge Expert (KWE)

Duration: 4 hours

Level: Fundamental

Audience: Mechanical and Electrical Design Engineers

Description:
This course will show you how to build up and share corporate knowledge stored in rule bases, and leverage it across the company to ensure design compliance with established standards.

Objectives:
Upon completion of this course you will be able to:
- Embed the complex design knowledge in a parametric part using Knowledgeware Expert.
- Automate design modifications using the specific Knoweldge Expert tools

Prerequisites: Students attending this course should be familiar with the basics of CATIA V5 and knowledgeware.

Product Engineering Optimizer (PEO)

Duration: 8 hours

Level: Fundamental

Audience: CAD Engineers, Analysts.

Description:
This course will teach you how to use the Product Engineering Optimization workbench to optimize your designs by formulating and solving an optimization problem, considering the constraints and conditions involved in the problem.

Objectives:
Formulate an optimization problem
- Select the appropriate algorithms to solve an Optimization Problem
- Analyze the results of optimization

Prerequisites:
Students attending this course should be familiar with the basics of CATIA V5.

3D Functional Tolerancing and Annotation (FTA)

Duration: 16 hours

Level: Fundamental

Audience: Mechanical Designers

Description:
This course will teach you how to annotate a 3D part. You will learn how to create annotation planes and how to add and manage 3D annotations on these planes.
You will also learn how to create 3D views and use them to create 2D drawing views.

Objectives:
Upon completion of this course you will be able to:
- Create and manage annotation planes and views
- Manage and position these annotations
- Add 3D annotations to a part
- Manage 3D geometry associated to the 3D Annotations

Prerequisites:
Students attending this course should be familiar with basic solid and surface creation functions and Knowledgeware.

V5 Administration (ADM)

Duration: 24 hours

Level: Fundamental

Audience: Administrators of CATIA V5

Description:
This course will teach you how to install CATIA V5 and its service packs. You will learn to use different tools to manage licenses, environments and standards. You will also learn to use tools available in batch mode and how to manage V4 and V5 data.

Objectives:
Upon completion of this course you will be able to:
- Install CATIA V5 and service packs
- Manage CATIA licenses and environments
- Manage CATIA settings and standards
- Use CATIA V5 data management tools
- Manage CATIA V4 data in V5, and CATIA V5 data in V4

Prerequisites:
Students attending this course should be familiar with system administration.

Composites Part Engineering (CPE)

Duration: 24 hours

Level: Fundamental

Audience: Composites Designers

Description:
This course will teach you how to build composite parts in the context of the engineering design process, from Preliminary Design to Engineering Detail Design.

Objectives:
Upon completion of this course you will be able to:
- Define the composites parameters
- Create a preliminary design using the Zone-based and the Solid-based approaches
- Generate composites parts from a preliminary design to engineering detail design

Prerequisites:
Students attending this course should be familiar with Part Design, Assembly Design, Wireframe and Surface Design, and Drafting.

Composites Part Manufacturing (CPM)

Duration: 16 hours

Level: Fundamental

Audience: Composites Designers

Description:
This course will teach you how to build composite parts for manufacturing detail design.

Objectives:
Upon completion of this course you will be able to:
- Understand the significance of the Manufacturing Data creation process in Composites design
- Generate the Manufacturing data structure from the Engineering data structure
- Modify the Manufacturing data structure
- Synchronize the link between the Manufacturing and the Engineering part

Prerequisites:
Students attending this course should be familiar with Part Design, Assembly Design, Wireframe, Surface Design and Drafting. Available Online Yes

Core and Cavity Design (CCV)

Duration: 12 hours

Level: Fundamental

Audience: Tooling designers with no experience on Core and Cavity Design

Description:
This course will teach you how to create the Core and Cavity of a molded part model. You will learn the basic methods used to create the core and cavity areas of a part, including sliders and loose cores that are required to design a Plastic Injection Mold.

Objectives:
Upon completion of this course you will be able to:
- Split a shape into mold areas
- Create the corresponding parting line and parting surface
- Create the core surface, cavity surface and slider/ lifter surfaces

Prerequisites:
Students attending this course should be familiar with CATIA V5 fundamentals

Functional Molded Parts (FMP)

Duration: 8 hours

Level: Fundamental

Audience: Molded Part Designers

Description:
This course will teach you how to use the Functional Molded Part workbench to create molded parts using basic features and to finalize the part using additional dress-up features. You will also be taught the multibody approach and will finally learn how to extract the cores and cavity from the final part.

Objectives:
Upon Completion of this course you will be able to:
- Create the main shapes of a molded part by defining the material added or removed from the part mold.
- Add functional features such as ribs or cutouts to the part.
- Finalize the molded part using feature modifiers such as fillets or patterns.
- Use the multi-body approach.
- Extract cores, cavities and other EDM inserts from the final part.

Prerequisites:
CATIA V5 Fundamentals

Healing Assistant (HA1)

Duration: 8 hours

Level: Fundamental

Audience: Tooling Designers, Mechanical Designers, Surface Designers.

Description:
This course introduces you to CATIA Healing Assistant's user interface and its basic tools. You Will learn how to analyze and repair the imported data (IGES 3D or CATIA V4 files). You will also learn how to compare two versions of a Part, and how to customize the workbench to suit your needs.

Objectives:
Upon completion of this course you will be able to:
- Analyze the imported data
- Repair the imported data
- Compare two versions of a Part
- Customize the workbench

Prerequisites:
Students attending this course should be familiar with the Wireframe and Surfaces

Mold Tooling Design (MTD)

Duration: 8 hours

Level: Fundamental

Audience: Mold Tooling Designers

Description:
This course will teach you how to design an injection mold and its components using standard and userdefined catalogs. You will learn the design process with the help of industrial examples.

Objectives:
Upon completion of this course you will be able to:
- Create a mold base using guided and fixed components
- Build a Plastic Injection Mold assembly from scratch

Prerequisites:
Students attending this course should be familiar with CATIA V5 fundamentals and Tooling Design fundamentals

Part Design Features Recognition (FR1)

Duration: 4 hours

Level: Fundamental

Audience: Mechanical Designers

Description:
This course will teach you to use the Feature Recognition tools of the Part Design workbench. You will learn how to build a comprehensive V5 data structure for solids whose specifications are lost or are unreachable. You will also learn how to perform flexible local design modifications on all kinds of models.

Objectives:
Upon completion of this course you will be able to:
- Build a feature-based model from a CATIA V5 isolated BRep solid model
- Build a feature-based model from a solid imported from another CAD system

Prerequisites:
Students attending this course should be familiar with CATIA V5 Fundamentals and CATIA Part Design

Tooling Design (TG1)

Duration: 16 hours

Level: Fundamental

Audience: Tooling Designers

Description:
This course teaches you the basics of the tool design. You will also learn how to create and instantiate different components of the mold.

Objectives:
Upon completion of this course you will be able to:
- Create the die and mold components using the Mold Tool Design workbench
- Instantiate the components in a die or mold structure

Prerequisites:
Students attending this course should be familiar with CATIA V5 fundamentals

Weld Design (WD1)

Duration: 8 hours

Level: Fundamental

Audience: Mechanical and Structural Designers

Description:
This course will teach you how to join parts using appropriate Weld Features. You will also learn how to generate fully associative Weld Drawings and Weld Reports.

Objectives:
Upon completion of this course you will be able to:
- Weld parts using appropriate features
- Extract 2D views from 3D Welds
- Generate Weld Reports

Prerequisites:
Students attending this course should be familiar with CATIA V5 Fundamentals

CATIA V5 Foundations for Aerospace Part Designers (V5AeD)

Duration: 40 hours

Level: Fundamental

Audience: Aerospace Part Designers

Description:
This course will introduce you to CATIA V5. It will teach you how to create simple models from 2D sketches, and then the correct techniques for the creation and annotation of complex solid models. It will introduce you to surface design and the concepts of part design in the context of an assembly.

Objectives:
Upon completion of this course you will be able to:
- Identify the appropriate CATIA V5 tools used for part design.
- Plan the construction of a complex part in order to properly convey its visual and functional aspects.
- Annotate parts.
- Design simple surface parts.
- Modify a part within the context of an assembly.

Prerequisites:
Students attending this course should be familiar with Mechanical Design and the Windows Operating System

CATIA V5 Foundations for Aerospace Assembly Designers (V5AeA)

Duration: 24 hours

Level: Fundamental

Audience: Aerospace Structure Designers

Description:
This course will introduce you to CATIA V5 assembly design. It will teach you how to manage assembly configurations and how to design and position components within the assembly. In addition you Will learn how to create a structured assembly in order to best design parts in an assembly context and how to control and manage the links created between the assembly components.

Objectives:
Upon completion of this course you will be able to:
- Understand the terminology used in assembly design
- Design structural parts in the context of an assembly
- Constrain assembly components
- Analyze an assembly
- Annotate an assembly

Prerequisites:
V5 Foundations for Aerospace Part Designers

CATIA V5 Foundations for Aerospace Part Reviewers (V5AeR)

Duration:16 hours

Level: Fundamental

Audience: Aerospace Part Reviewers

Description:
This course will explain how to use CATIA V5 workbenches. It will teach you how to review an existing part by verifying its properties,its coordinates and measurements, and how to add annotations to the parts.

Objectives:
Upon completion of this course you will be able to:
- Measure a part with respect to a pre-defined axis system.
- Annotate an existing part.
- Differentiate between parts and assemblies.

Prerequisites:
A Student attending this course should be familiar with Mechanical Design and the Windows Operating System

CATIA V5 Foundations for Body Designers (V5VB)

Duration: 56 hours

Level: Fundamental

Audience: Automotive Body Designers

Description:
This course will teach you how to use the fundamental concepts in CATIA V5 to build simple automotive parts and assemblies, and make simple drawings of those parts and assemblies. You will also learn the correct solid and surface modeling methodology necessary for body design.

Objectives:
Upon completion of this course you will be able to:
- Describe the CATIA V5 interface
- Apply the correct solid and surface modeling methodology for body design
- Create an automobile part in order to satisfy its design intent
- Design and manage parts in the context of an assembly
- Produce simple drawings and assembly layouts

Prerequisites:
Students attending this course should be familiar with the fundamentals of Mechanical and Surface Design

CATIA V5 Foundations for Chassis Designers (V5VC)

Duration: 56 hours

Level: Fundamental

Audience: Automotive Chassis Designers

Description:
This course will introduce the fundamental concepts in CATIA V5 that are required to build simple automotive parts and assemblies in CATIA, and how to make simple drawings of those parts and assemblies. It Will introduce you to the correct solid and surface modeling methodology necessary for chassis design.

Objectives:
Upon completion of this course you will be able to:
- Describe the CATIA V5 interface
- Apply the correct solid and surface modeling methodology for Chassis design
- Create an automobile part in order to satisfy its design intent
- Apply advanced solid modeling technique necessary for Chassis design methodology
- Design and manage parts in the context of an assembly
- Produce simple drawings and assembly layouts

Prerequisites:
Students attending this course should know the basics of Mechanical and Surface Design

CATIA V5 Foundations for Powertrain Designers (V5VP)

Duration: 56 hours

Level: Fundamental

Audience: Automotive Powertrain Designers

Description:
This course will teach you to use the fundamental conceptsin CATIA V5 to build simple automotive parts and assemblies, and make simple drawings of those parts and assemblies.You will also learn how to use the advanced solid modelingtechniques necessary for Powertrain design methodology.

Objectives:
Upon completion of this course you will be able to:
- Describe the CATIA V5 interface
- Apply the correct solid and surface modeling methodology for Powertrain Design
- Create an automobile part in order to satisfy its design intent
- Apply advanced solid modeling technique necessary for Powertrain design methodology
- Design and manage parts in the context of an assembly
- Produce simple drawings and assembly layouts

Prerequisites:
Students attending this course should know the fundamentals of Mechanical Design

CATIA V5 for Surfaces (V5S)

Duration: 24 hours

Level: Fundamental

Audience: Surface Designers

Description:
This course will teach you how to create curves and surfaces using the Generative Shape Design workbench. You will learn how to analyze the wireframe and surface quality and rectify the defects. You will also learn how to work in a multi-model environment with published surfaces.

Objectives:
Upon completion of this course you will be able to:
- Use the tools of the Generative Shape Design workbench
- Create good quality curves based on a sound and improved wireframe geometry
- Assemble, relimit and connect the surfaces to get a topology
- Analyze the quality of surfaces and rectify the defects
- Manage the surfaces in a multi-model environment

Prerequisites:
Students attending this course should be familiar with the fundamentals of CATIA V5

CATIA Surface Design Expert (GSD)

Duration: 16 hours

Level: Advanced

Audience: Mechanical Designers and Surface Designers

Description:
This course will first recall and summarize the tools taught in the Surface Design course. It will then capitalize on this knowledge and teach you advanced surface creation tools, quality checking and correction techniques, and surface creation in a multi-model environment. This course covers only those Generative Shape Design tools that are specific to the HD2 license.

Objectives:
Upon completion of this course you will be able to:
- Create wireframe features using existing curves and surfaces
- Create advanced and parameterized swept surfaces
- Perform advanced surface analysis and gap correction
- Create advanced blend features
- Improve the quality and stability of created geometries

Prerequisites:
Students attending this course should have attended the CATIA Surface Design course

CATIA Imagine and Shape (IMA)

Duration: 8 hours

Level: Fundamental

Audience: Product Stylists, Industrial Designers

Description:
This course will teach you how to use the Imagine and Shape workbench in CATIA to create new producto shapes. You will also learn how to improve producto styles.

Objectives:
Upon completion of this course you will be able to:
- Create and modify curves
- Create subdivision surfaces using tools specific to the Imagine and Shape workbench
- Modify product style surfaces

Prerequisites: Students attending this course should know the CATIA Generative Shape Design workbench.

CATIA Digitized Shape Editor (DSE)

Duration: 8 hours

Level: Fundamental

Audience: Shape Designers

Description:
This course will teach you how to use the CATIA Digitized Shape Editor to import and use digitized data (scans or clouds of points). You will also learn how to create meshes and extract characteristic curves from the data. The course mainly focuses on Reverse Engineering techniques.

Objectives:
Upon completion of this course you will be able to:
- Import and process a digitized points cloud data
- Create a tessellated mesh on the points cloud data
- Extract characteristic curves from the data
- Export the result to other file formats

Prerequisites:
Students attending this course should be familiar with the fundamentals of CATIA V5.

Quick Surface Reconstruction (QSR)

Duration: 8 hours

Level: Fundamental

Audience: Surface Designers

Description:
This course will teach you how to use CATIA features in Quick Surface Reconstruction workbench in the Reverse Engineering phase to create surfaces using a given Point Cloud data. You will also learn how to use these features in real time industrial scenario.

Objectives:
Upon Completion of this course you will be able to:
- Create scans from point cloud data and use them to draw curves and surfaces
- Create model and fillet model
- Create deviation analysis and annotations

Prerequisites:
Students attending this course should know the fundamentals of CATIA V5. They should also be familiar with Surface Design in CATIA V5 and the Digitized Shape Editor producto

Automotive Body in White Fastening (ABF)

Duration: 16 hours

Level: Fundamental

Audience: CATIA V5 Automotive Body Designers

Description:
This course will teach you how to create or modify a car body in an associative styling and engineering context. You will learn how to create an associative shape, place welding points on it and then assemble it with other parts. In addition, you will learn how to generate drawings and fastener documentation from the resulting assembly.

Objectives:
Upon completion of this course you will be able to:
- Prepare assemblies for fastener creation
- Create and manage Body in White (BiW) fasteners
- Check and analyze the applied design rules
- Create annotated drawings
- Output assembly and fastener data

Prerequisites:
Students attending this course should have an expert knowledge of CATIA Surface Design. They should also be familiar with Product Design and Drafting in CATIA V5

Developed Shapes (DL1)

Duration: 4 hours

Level: Fundamental

Audience: Surface Designers

Description:
This course will teach you how to use CATIA Developed Shape functionalities to create unfolded surfaces from a ruled surface . You will learn how to develop wires and points onto a revolution surface.

Objectives:
Upon completion of this course you will be able to:
- Create unfolded surfaces from a ruled surface using CATIA Developed Shape functionalities
- Develop wires and points onto a revolution surface

Prerequisites:
Students attending this course should be familiar with the fundamentals of CATIA and Generative Surface Design

FreeStyle Shaper, Optimizer and Profiler (FSS)

Duration: 12 hours

Level: Fundamental

Audience: Surface Designers

Description:
This course will teach you how to create flawless, styled shapes from scratch using three-dimensional free-form curves and surfaces or using digitized data. You will also learn how to analyze and improve the quality of existing curves and surfaces.

Objectives:
Upon completion of this course you will be able to:
- Create styled shapes using digitized data
- Create surfaces using a curve-based approach
- Create surfaces using a surface-based approach
- Analyze and correct the curve quality
- Analyze and correct the surface quality

Prerequisites:
Students attending this course should know Surface Design in CATIA V5.

Freestyle Sketch Tracer (FSK)

Duration: 4 hours

Level: Fundamental

Audience: Shape Designers

Description:
This course will teach you how to import images in the CATIA V5 environment and use them as a background or a basis for your design.

Objectives:
Upon completion of this course you will be able to:
- Import an image into CATIA V5
- Position the image in the CATIA V5 environment
- Use the image as a background or as a basis for the design

Prerequisites:
Students attending this course should know the basics of CATIA V5.

Generative Shape Design Optimizer (GSO)

Duration: 8 hours

Level: Fundamental

Audience: Surface Designers

Description:
This course will teach you how to optimize surface built in Generative Shape Design workbench by morphing and deforming existing surfaces.You will learn about volumes and tools dedicated to BIW applications.

Objectives:
Upon completion of the course you will learn to:
- Develop Shapes
- Morph Shapes
- Create Junctions (BIW application) between surfaces
- Work with Volumes

Prerequisites:
Students attending this course should know Surface Design in CATIA V5.

Real Time Rendering (RTR)

Duration: 8 hours

Level: Fundamental

Audience: CATIA V5 Fundamentals

Description:
This course will teach you to create realistic renderings and animations by dynamically creating and manipulating materials, lights and environments.

Objectives:
Upon completion of this course you will be able to:
- Create the required environment around a model
- Apply materials, textures, and 3D textures to your models
- Use different types of lights and cameras to créate the desired ambience

Prerequisites:
Students attending this course should know CATIA V5 Fundamentals

Photo Studio (PHS)

Duration: 4 hours

Level: Fundamental

Audience: Industrial Stylists and Designers

Description:
This course will teach you how to create photo realistic images and simple animations of a product using Photo Studio workbench.

Objectives:
Upon completion of this course you will be able to:
- Create photo realistic images
- Create and apply stickers to your models
- Create animations using different techniques

Prerequisites:
Students attending this course should know CATIA V5 Fundamentals

Realistic Shape Optimizer (RSO)

Duration: 4 hours

Level: Fundamental

Audience: Surface designers, Tooling designers

Description:
This course will teach you how to perform digitized morphing on surfaces using Realistic Shape Optimizer tools considering the analysis results. You will also learn how to update the Digitized Morphing features as per the changes in the displacement file.

Objectives:
Upon completion of this course you will be able to deform a surface using the displacement file resulting from Finite Element Analysis.

Prerequisites:
Students attending this course should be familiar with the basics of wireframe and surfaces creation.

CATIA V5 Analysis (V5A)

Duration: 8 hours

Level: Fundamental

Audience: Mechanical Designers and Structural Analysts

Description:
This course will introduce the concepts and benefits of Finite Element Analysis and the general analysis process. It will teach you how to prepare a model for analysis, create 1D, 2D and 3D FE models, and compute a simple static analysis for a single part or an assembly.

Objectives:
Upon completion of this course you will be able to:
- Create a Finite Element Analysis model
- Prepare a solid or a surface model for analysis
- Create 1D, 2D and 3D meshes for beam, surface, and solid models
- Assign properties, loads and constraints, and define assembly connections
- Compute an analysis for a part or an assembly
- Generate and display analysis results

Prerequisites:
Students attending this course should have followed the CATIA V5 Fundamentals course

Generative Part Structural Analysis Fundamentals (GPF)

Duration: 8 hours

Level: Fundamental

Audience: Mechanical Designers

Description:
This course will teach you the basic concepts of Finite Element Analysis and the general analysis process. You will learn how to perform a simple static analysis on a single part using finite elements, and how to produce the final report of the analysis results.

Objectives:
Upon completion of this course you will be able to:
- Understand why, when, and how to use Finite Element Analysis
- Use different element types and shapes to mesh a part
- Apply clamp, slider, and iso-static restraints
- Apply force, moment, and displacement loads
- Compute the static analysis for a single part
- Visualize the images of the analysis results and produce the analysis reports
- Refine existing meshes to produce more accurate results

Prerequisites:
Students attending this course should be familiar with the fundamentals of CATIA V5

Generative Part Structural Analysis Expert (GPE)

Duration: 8 hours

Level: Fundamental

Audience: Mechanical Designers

Description:
This course will teach you how to use advanced Finite Element Analysis pre-processing techniques and postprocessing tools, including the concept of defining virtual parts to avoid excessive geometric modeling. You will learn how to perform frequency analysis on a single part, and how to use adaptive meshing to achieve pre-defined accuracy.

Objectives:
Upon completion of this course you will be able to:
- Define and customize the material properties of the parts to be analyzed
- Apply pressure, acceleration, and force density loads
- Define virtual parts to simplify the analysis
- Apply pivot, ball-joint, and user-defined restraints
- Compute the frequency analysis for a single part
- Create planar sections to visualize the internal result values
- Compute and refine a mesh using adaptive meshing in order to achieve the pre-defined accuracy

Prerequisites:
Students attending this course should have taken the CATIA V5 Fundamentals and Generative Part Structural Analysis Fundamentals courses.

Generative Assembly Structural Analysis (GAS)

Duration: 8 hours

Level: Fundamental

Audience: Mechanical Designers

Description:
This course will teach you how to perform a Finite Element Analysis using an existing assembly. You Will learn how to create connections between assembly components and how to assign appropriate connection properties. You will also learn how to create an analysis assembly from existing meshed parts.

Objectives:
Upon completion of this course you will be able to:
- Understand and differentiate between various types of hypotheses that are used for creating an assembly analysis
- Define analysis connections between assembly components
- Use existing assembly constraints to automatically create analysis connections
- Assign a connection property to the appropriate analysis connection
- Compute a static analysis for an assembly
- Create and manage an analysis assembly model using existing meshed parts

Prerequisites:
Students attending this course should have taken the CATIA V5 Fundamentals and Generative

Numerical Control Infrastructure (NCI)

Duration: 16 hours

Level: Fundamental

Audience: NC Programmers

Description:
This course will teach you how to use various functionalities common across all the Machining workbenches in CATIA. It will teach you the fundamentals of creating and simulating a Manufacturing Program.

Objectives:
Upon completion of this course you will be able to:
- Identify and use the Manufacturing workbenches' tools
- Create a Manufacturing Program
- Simulate a Manufacturing Program
- Manage Tools and Tool Catalogs
- Compute and verify the Tool Path
- Generate NC data using an integrated Post Processor
- Create shop floor documentation
- Manage design changes
- Import V4 data

Prerequisites:
Students attending this course should be familiar with CATIA V5 fundamentals

Prismatic Machining (PMG)

Duration: 16 hours

Level: Fundamental

Audience: NC Programmers

Description:
This course will teach you how to define and manage NC programs to machine parts using Prismatic Machining techniques in the Prismatic Machining (PMG) workbench. You will learn to create 2.5 Axis Milling operations. You will also learn to use the PMG functionalities to créate Prismatic Machining and Rework Areas.

Objectives:
Upon completion of this course you will be able to:
- Define Prismatic Machining operations
- Create a Prismatic Machining Area and a Rework Area
- Define and modify NC Macros

Prerequisites:
Students attending this course should have completed the CATIA V5 Fundamentals course and the Numerical Control Infrastructure course.

Surface Machining (SMG)

Duration: 16 hours

Level: Fundamental

Audience: NC Programmers

Description:
This course will teach you how to define and manage NC programs dedicated to machining parts that are designed with Surface or Solid geometry. You will learn how to define 3 Axis Roughing, Semi-finishing and Finishing operations. The course will also help you to improve productivity in mould and die machining using various functionalities of 3-Axis Surface Machining.

Objectives:
Upon completion of this course you will be able to:
- Define 3-Axis Surface Machining operations
- Define Probing Operations
- Create a Machining Area before performing the operations
- Define a Rework Area
- Analyze and modify the Tool Path

Prerequisites:
Students attending this course should be familiar with the CATIA V5 Fundamentals course and the Numerical Control Infrastructure workbench.

Lathe Machining (LMG)

Duration: 8 hours

Level: Fundamental

Audience: NC Programmers

Description:
This course will teach you how to define and manage NC programs dedicated to machining parts using Lathe Machining techniques. You will learn how to program Lathe Machining operations such as Rough Turning, Finish Turning, Recessing, Grooving, Threading, and Drilling. You will also learn how to manage various Lathe Tools.

Objectives:
Upon completion of this course you will be able to:
- Define Lathe Machining operations
- Manage Lathe Tools and Tool Assemblies
- Use different methodologies for Lathe Machining

Prerequisites:
Students attending this course should have attended the CATIA V5 Fundamentals and the Numerical Control Infrastructure courses.

Multi-Axis Surface Machining (MMG)

Duration: 8 hours

Level: Fundamental

Audience: NC Programmers

Description:
This course teaches you how to create high quality NC programs for machining complex 3D parts and free-form shapes using Multi-Axis machining techniques. The course also teaches you to define 5- Axis machining operations.

Objectives:
Upon completion of this course you will be able to:
- Identify and use the Multi-Axis Surface Machining workbench tools
- Define various 5-Axis machining operations

Prerequisites:
Students attending this course should be familiar with CATIA V5 Surface Machining (SMG) Fundamentals.

Advanced Part Machining (AMG)

Duration: 12 hours

Level: Fundamental

Audience: NC Programmers

Description:
This course teaches you how to generate high quality NC programs for machining complex 3D parts and free-form shapes using advanced machining techniques. You will learn how to perform 2.5 to 5-Axis machining operations and Axial Machining.

Objectives:
Upon completion of this course you will be able to:
- Define a Multi-Axis Flank Contouring operation
- Define a Multi-Axis Helix Machining operation
- Define a Cavities Roughing operation

Prerequisites:
Students attending this course must be familiar with the NCI, PMG, SMG, and MMG workbenches.

Multi-Axis Surface Machining (MMG)

Duration: 8 hours

Level: Fundamental

Audience: NC Programmers

Description:
This course teaches you how to create high quality NC programs for machining complex 3D parts and free-form shapes using Multi-Axis machining techniques. The course also teaches you to define 5- Axis machining operations.

Objectives:
Upon completion of this course you will be able to:
- Identify and use the Multi-Axis Surface Machining workbench tools
- Define various 5-Axis machining operations

Prerequisites:
Students attending this course should be familiar with CATIA V5 Surface Machining (SMG) Fundamentals

Multi-Pockets Machining (MPG)

Duration: 4 hours

Level: Fundamental

Audience: NC programmer, Machinist

Description:
This course teaches you to generate high quality NC programs for machining structural prismatic multicavity parts such as aerospace structural parts. The course helps you to improve productivity in the context of Power Machining. The course also teaches Offset Management in detail.

Objectives:
Upon completion of this course you will be able to:
- Create high quality NC programs for machining structural prismatic multi-cavity parts such as aerospace structural parts
- Define Multi-Pockets Operations in Power Machining and Flank Contouring

Prerequisites:
Students attending this course should be familiar with CATIA V5 Fundamentals and Numerical Control Infrastructure.

Multi- Slide Lathe Machining (MLG)

Duration: 8 hours

Level: Fundamental

Audience: NC Programmers who need to optimize NC Programs in a multi-turret machine environment

Description:
This course will teach you how to define and manage NC programs using Multi turret and Multi spindle machines. You will learn how to créate synchronizations between two machining operations and visualize the distribution of the machining operations while applying various turrets using the Gantt chart. The course will also help you to check program sequence, synchronization influences, and potential collisions between tools using Time Based Replay and Video.

Objectives:
Upon completion of this course you will be able to:
- Build NC programs for multi-turret and multi-spindle machines
- Create synchronizations between two machining operations
- Visualize the distribution of the machining operations while applying various turrets using the Gantt chart
- Check program sequence, synchronization influences, and potential collisions between tools using time-based replay and video

Prerequisites:
Students attending this course should be familiar with CATIA V5 Fundamentals, NC Infrastructure, and Lathe Machining.

Introduction to Abaqus

Duration: 32 hours

Level: Fundamental

Audience: Simulation Analysts

Description:
This course is a comprehensive and unified introduction to the modeling and analysis capabilities of Abaqus. It teaches you how to solve linear and nonlinear problems, submit and monitor analysis jobs and view simulation results using the interactive interface of Abaqus.

Objectives:
Upon completion of this course you will be able to:
- Use Abaqus/CAE to create complete finite element models.
- Use Abaqus/CAE to submit and monitor analysis jobs.
- Use Abaqus/CAE to view and evaluate simulation results.
- Solve structural analysis problems using Abaqus/ Standard and Abaqus/Explicit, including the effects of material nonlinearity, large deformation and contact.

Prerequisites:
None

Introduction to Abaqus/CAE

Duration: 16 hours

Level: Fundamental

Audience: Simulation Analysts

Description:
Abaqus/CAE provides a complete interactive environment for creating Abaqus models, submitting and monitoring analysis jobs and viewing and manipulating simulation results.

Objectives:
Upon completion of this course you will be able to:
- Use Abaqus/CAE to create complete finite element models.
- Use Abaqus/CAE to submit and monitor analysis jobs.
- Use Abaqus/CAE to view and evaluate simulation results

Prerequisites:
None

Abaqus/CAE: Geometry Import and Meshing

Duration: 16 hours

Level: Advanced

Audience: Simulation Analysts

Description:
This course provides an in-depth look at several advanced Abaqus/CAE capabilities: CAD geometry import and repair, meshing and partitioning of complicated geometry.

Objectives:
Upon completion of this course you will be able to:
- Import, edit, and repair CAD geometry.
- Import and edit orphan meshes.
- Use virtual topology to ease the meshing of complicated geometry.
- Partition geometry to enable different meshing techniques.

Prerequisites:
None

Analysis of Composite Materials with Abaqus

Duration: 24 hours

Level: Advanced

Audience: Simulation Analysts

Description:
Composite materials are used in many design applications because of their high stiffness-to-weight ratios. This seminar shows you how to use Abaqus effectively to model composite materials.

Objectives:
Upon completion of this course you will be able to:
- Define anisotropic elasticity for combining the fibermatrix response
- Define composite layups
- Model progressive damage and failure in composites
- Model delamination and low-cycle fatigue of composite structures
- Model sandwich composite structures and stiffened composite panels

Prerequisites:
This course is recommended for engineers with experience using Abaqus

Heat Transfer and Thermal Stress Analysis with Abaqus

Duration: 16 hours

Level: Advanced

Audience: Simulation Analysts

Description:
The success of many structural designs requires a thorough understanding of both the thermal and mechanical response of the design. Temperaturedependent material properties, thermally-induced deformation, and temperature variations all may be important design considerations.

Objectives:
Upon completion of this course you will be able to:
- Perform steady-state and transient heat transfer simulations
- Solve cavity radiation problems
- Model latent heat effects
- Perform adiabatic, sequential, and fully coupled thermal-stress analyses
- Model contact in heat transfer problems

Prerequisites:
This course is recommended for engineers with experience using Abaqus.

Introduction to Abaqus/Standard and Abaqus/Explicit

Duration: 24 hours

Level: Fundamental

Audience: Simulation Analysts

Description:
This introductory course is the ideal way to obtain a working knowledge of how to use both Abaqus/ Standard and Abaqus/Explicit to solve linear and nonlinear problems. The seminar introduces you to the analysis capabilities of Abaqus using the keywords interface.

Objectives:
Upon completion of this course you will be able to:
- Complete finite element models using Abaqus keywords.
- Submit and monitor analysis jobs.
- View and evaluate simulation results.
- Solve structural analysis problems using Abaqus/ Standard and Abaqus/Explicit, including the effects of material nonlinearity, large deformation and contact.

Prerequisites:
None

Element Selection in Abaqus

Duration: 16 hours

Level: Advanced

Audience: Simulation Analysts

Description:
This course provides a brief overview of the distinguishing characteristics of the wide range of continuum and structural elements available in Abaqus for stress analyses. It explains modeling features that may cause certain types of elements to behave poorly.

Objectives:
Upon completion of this course you will be able to:
- Understand the distinguishing characteristics of the wide range of continuum and structural elements available in Abaqus for stress analyses
- Understand modeling features that may cause certain types of elements to behave poorly
- Choose appropriate element types for different applications including the effects of fully or nearly incompressible material behavior, contact, bending, etc.

Prerequisites:
This course is recommended for engineers with experience using Abaqus

Linear Dynamics with Abaqus

Duration: 16 hours

Level: Advanced

Audience: Simulation Analysts

Description:
This course introduces the user to the algorithms and methods used to study linear dynamic problems with Abaqus/Standard.

Objectives:
Upon completion of this course you will be able to:
- Extract eigenmodes about a certain frequency
- Determine whether the number of extracted eigenmodes is sufficient to represent the structure's response adequately
- Perform transient, steady-state, response spectrum and random response analyses using the eigenmodes
- Use multiple base motions
- Apply damping in linear problems

Prerequisites:
This course is recommended for engineers with experience using Abaqus

Metal Inelasticity in Abaqus

Duration: 16 hours

Level: Advanced

Audience: Simulation Analysts

Description:
This seminar provides a brief overview of the inelastic behavior observed in metals and the basic concepts of plasticity theory.

Objectives:
Upon completion of this course you will be able to:
- Metals that show inelastic work hardening
- The Bauschinger effect
- "Ratchetting" and relaxation of the mean stress under cyclic loading
- Strain-rate-dependent inelastic behavior
- Temperature-dependent plasticity
- Heat generated by plastic deformation
- Ductile failure of metallic materials
- Plastic behavior in porous and brittle (cast iron) metals
- Creep behavior in metals

Prerequisites:
This course is recommended for engineers with experience using Abaqus

Modeling Contact and Resolving Convergence Issues with Abaqus

Duration: 24 hours

Level: Advanced

Audience: Simulation Analysts

Description:
This 3-day course provides an in-depth discussion on solving nonlinear problems in Abaqus/Standard with an emphasis on modeling and convergence-related issues for contact. Engineers at Abaqus have developed many techniques and guidelines for solving challenging contact problems. Convergence issues related to complicated material models and geometrically unstable behavior are also covered. Many years of practical experience in understanding and resolving convergence issues have been condensed into this course.

Objectives:
Upon completion of this course you will be able to:
- Define general contact and contact pairs
- Define appropriate surfaces (rigid or deformable)
- Model frictional contact
- Model large sliding between deformable bodies
- Resolve overclosures in interference fit problems
- Understand how nonlinear problems are solved in Abaqus
- Develop Abaqus models that will converge
- Identify modeling errors that cause models to experience convergence difficulties
-Recognize when a problem is too difficult or too
illposed to be solved effectively

Prerequisites:
This course is recommended for engineers with experience using Abaqus

Modeling Contact with Abaqus/Standard

Duration: 16 hours

Level: Advanced

Audience: Simulation Analysts

Description:
Participants are given a brief overview of the contact formulation and contact logic used in Abaqus/ Standard. The hands-on workshops provide ample opportunity to use the concepts developed in the lectures and to learn how to postprocess the results of a contact analysis.

Objectives:
Upon completion of this course you will be able to:
- Define general contact and contact pairs
- Define appropriate surfaces (rigid or deformable)
- Model frictional contact
- Model large sliding between deformable bodies
- Resolve overclosures in interference fit problems

Prerequisites:
This course is recommended for engineers with experience using Abaqus/Standard

Modeling Rubber and Viscoelasticity with Abaqus

Duration: 16 hours

Level: Advanced

Audience: Simulation Analysts

Description:
This course provides a brief overview of finite deformations and the material models used for rubber and resilient foam.

Objectives:
Upon completion of this course you will be able to:
- Use experimental test data to calculate material constants
- Check the stability of the Abaqus material model at extreme strains
- Obtain the best possible material constants from the available test data
- Select elements for modeling rubber and foams
- Design an appropriate finite element mesh
- Model viscoelastic behavior in both the time and frequency domain
- Use a user subroutine to define the hyperelastic behavior

Prerequisites:
This course is recommended for engineers with experience using Abaqus

Tire Analysis with Abaqus: Fundamentals

Duration: 16 hours

Level: Fundamental

Audience: This course is recommended for tire analysts with experience using Abaqus

Description:
Modern tires are among the most complex structures in production and their complexities span a broad range of the capabilities available in Abaqus. Since tire modeling is a specialized field, this seminar covers the many important yet basic capabilities in Abaqus that are specifically relevant to tire modeling.

Objectives:
In this course you will learn about:
- Choosing appropriate elements
- Methods of modeling reinforcement
- Contact modeling details pertinent to tire modeling
- Fundamentals of material modeling-stress and strain measures, material directions
- Linear elasticity, hyperelasticity and viscoelasticity
- Efficient axisymmetric to three-dimensional model generation and results transfer

Prerequisites:
None

Introduction to Isight

Duration: 16 hours

Level: Fundamental

Audience: Simulation Analysts

Description:
Isight is a Process Integration and Design Optimization (PIDO) software framework, which enables various applications to be easily integrated. With Isight you can create flexible simulation process flows to automate the exploration of design alternatives and identification of optimal performance parameters. This course comprehensively covers the Design and Runtime Gateways along with several fundamental components, exposing users to the ways in which a workflow can be built in Isight and the ways in which the design space can be explored.

Objectives:
Upon completion of this course you will be able to:
- Automate a series of functions to create a Sim-flow
- Add components to a Sim-flow
- Set up the core component
- Configure components to pass data to/from each other
- Execute a Sim-flow
- Visualize Sim-flow results
- Evaluate design alternatives
- Create a Sim-flow to capture a process, by integrating various software in the company.
- Perform Design Optimization and gain Design Space understanding by using various techniques such as DOE, Optimization, Monte Carlo etc

Prerequisites:
None

Optimizing Engineering Methods with Isight

Duration: 16 hours

Level: Advanced

Audience: Simulation Analysts or Scientists

Description:
This course will provide a brief overview of Isight and optimization before moving on to discuss nonlinear optimization theories and applications. Topics such as techniques for design space searching, multiobjective optimization, optimization strategy, and multidisciplinary optimization will be covered during the seminar. Attendees will learn key differences between the optimization algorithms offered by Isight, how to choose the preferred method depending on the problem, how to remedy issues with run-time performance, and other topics relevant to improving the usage and value of Isight for real engineering optimization problems.

Objectives:
Gain hands-on experience to understand nonlinear optimization theories and techniques:
-How does exploring the design space can assist with optimization
-The capabilities of different optimization techniques and exploration strategies
-Methodologies for Multidisciplinary Design Optimization (MDO).

Prerequisites:
Introduction to Isight.

Introduction to fe-safe

Duration: 16 hours

Level: Fundamental

Audience: Simulation Analysts

Description:
In this practical introduction to fe-safe you will learn how to set up and run various fatigue analyses using fe-safe. The course includes many hands-on tutorials and practical examples.

Objectives:
Upon completion of this course you will be able to:
- Set up and run various fatigue analyses using fesafe
- Set up models and import models into fe-safe
- Select a material for fatigue analysis
- Set up your loadings
- Run various analyses in fe-safe

Prerequisites:
None.

Introduction to Tosca Structure

Duration: 16 hours

Level: Fundamental

Audience: Simulation Analysts independent of FE-Solver and Pre-/Postprocessing environment in use

Description:
This course is a comprehensive introduction to the structural optimization capabilities of Tosca Structure.

Objectives:
Upon completion of this course you will be able to:
- Upon completion of this course you will be able to create optimal design concepts or improve existing designs of mechanical structures:
- Solve fundamental topology, shape, sizing and bead optimization problems
- Optimize parts regarding weight, stiffness and durability
- Visualize, evaluate and transfer optimization results

Prerequisites:
None (basic knowledge of finite element analysis).

Gateway to the 3DEXPERIENCE platform

Duration: 4 hours

Level: Fundamental

Audience: Users of the 3DEXPERIENCE Platform

Description:
This course is the entry point to the 3DEXPERIENCE platform. Its purpose is to empower users of the platform by teaching them how to access their work environment, navigate, search, work on their data, use and manage their dashboard and collaborate with their peers thanks to communities. This course will teach you the new interface and functionalities of the 3DEXPERIENCE Platform. You will learn how to connect to the platform, manage your projects, search documents and share content along with knowledge or skills with other users.

Objectives:
Upon completion of this course you will be able to:
- Understand the 3DEXPERIENCE interface
- Connect to the 3DEXPERIENCE Platform
- Access your Dashboard
- Use the 6WTags for searching content
- Share various documents with other users through
- 3DSpace
- Use standard menus and commands
- Explain the functionalities of various apps in the
- 3DEXPERIENCE Platform
- Import new data and export it as 3DXML files
- Search for a 3D data using different methods
- Explore and open 3D data
- Manipulate the tree
- Filter data

Prerequisites:
There are no prerequisites for this course

Transition to the 3DEXPERIENCE platform for Mechanical Designers

Duration: 12 hours

Level: Fundamental

Audience: Designers who need to work with mechanical parts

Description:
This course addresses the needs of Mechanical Designers. It will first teach you how to design a new part with the 3DEXPERIENCE platform, insert the part in a product then position and constrain it. You Will learn how to assign material properties and compute weight, then complete a simple drawing. Finally, you will learn how to create a new part version, replace the original part and update the product. More advanced topics will also be covered: they will teach you how to manage complex product structures, create producto features, manage catalogs and analyze assemblies.

Objectives:
Upon completion of this course you will be able to:
- Create new products and parts
- Insert a part in a product and position it
- Apply materials to parts
- Calculate the weight of a product
- Insert and complete a drawing
- Create a new part version
- Replace a part and update a product

Prerequisites:
Students attending this course should have completed the Gateway to the 3DEXPERIENCE platform course. They should also be familiar with CATIA V5 Mechanical Design.

Transition to the 3DEXPERIENCE Platform for Surface Designers

Duration: 8 hours

Level: Fundamental

Audience: Designers who need to work with styled parts.

Description:
This course addresses the needs of Surface Designers. It will first teach you how to design a new part with the 3DEXPERIENCE platform. You will also learn how to create a new part version, replace the original part and update the product.

Objectives:
Upon completion of this course you will be able to:
- Create new products and parts
- Create a new part version
- Replace a part and update a producto

Prerequisites:
Students attending this course should have completed the Gateway to the 3DEXPERIENCE platform course. They should also be familiar with CATIA V5 Mechanical Design and Surface Design.

ENOVIA Collaboration for Microsoft Essentials

Duration: 6 hours

Level: Fundamental

Audience: Project Managers, Design Engineers, Reviewers and Technical Writers.

Description:
This course will teach you how to use the ENOVIA Collaboration for Microsoft App to access and manage the documents in the ENOVIA database using the Microsoft applications.

Objectives:
Upon completion of this course you will be able to:
- Access documents from the ENOVIA database using the Microsoft applications
- Create, manage and synchronize the documents

Prerequisites:
Students attending this course should have completed the Gateway to the 3DEXPERIENCE Platform course and should be familiar with Collaboration and Approvals in ENOVIA.

ENOVIA Collaboration and Approvals Essentials

Duration: 8 hours

Level: Fundamental

Audience: 3DEXPERIENCE platform Users

Description:
This course will teach you the common functionalities used throughout the ENOVIA apps, which enable you to manage your content as well as collaborate with other members in a team. You will learn how to create workspaces for managing your business related components, such as folders, members and tasks. You will also learn how to create various workflows using routes, subscribe to your task related events, and report issues for objects. Further, you will learn to create and versión your documents, while maintaining a record for all its revisions.

Objectives:
Upon completion of this course you will be able to:
- Illustrate the structure of ENOVIA Business Process Services
- Create and manage your folders
- Create workflows
- Identify and manage your assigned tasks
- Subscribe to various objects and events
- Report and resolve issues in objects
- Create, track and organize your documents

Prerequisites:
Students attending this course should have completed the Gateway to the 3DEXPERIENCE Platform course.

3DEXPERIENCE 3D Component Designer Essentials

Duration: 2 hours

Level: Fundamental

Audience: Component Designers, Mechanical Designers, CAD users

Description:
This course is based on the Power By approach, whereby Designers on all versions and solutions (V5, V6) learn how to leverage the power of the 3DEXPERIENCE platform for their projects and daily work. More specifically, in this course you will learn the various functionalities available with the 3D Component Designer role of the 3DEXPERIENCE platform. The 3D Component Designer connects CATIA V5 file-based CAD users to the 3DEXPERIENCE platform, enabling you to manage product designs and documents directly from the desktop authoring application. Moreover, you can leverage the platform's web-based apps to manage, annotate and visualize designs anywhere, anytime and on any device.

Objectives:
Upon completion of this course you will be able to:
- Import the data using batch import
- Connect to CATIA V5 and modify the design
- Create slides and markups
- Schedule meeting using XCAD Management App
- Browse and create annotations

Prerequisites:
Students attending this course must be familiar with the fundamentals of CATIA V5 and should have completed.

Introduction to Injection Molding and CAE

Introduction:
– Polymer Processing and Injection Molding
– Application and Common Problems

Main Factors on Injection Molding Process:
– Injection Molding Process and properties
– Scientific of Injection Molding
– Traditional Trial and Error Method

Application of CAE in Injection Molding Process:
– Benefit of CAE > Moldex3D
– Molding Innovation
– Professional Team
– Developing Softwar

Prerequisites:
Students attending this course should know about plastic parts.

Introduction to Designer BLM

What to learn:

Learning objectives:

– The advantage of Designer BLM

– Key feature provided in Designer BLM

Moldex3D versión:

– All Moldex3D Designer BLM product

Recommended user :

– All Moldex3D Designer BLM user.

Fundamental of Moldex3D Designer Interface

What to learn:

Learning objectives

– All definition of Designer functions in Designer BLM

– What geometry type of design could be supported

Moldex3D versión:

– All Moldex3D Designer BLM product

Recommended user:

– All Moldex3D Designer BLM user.

Analysis Procedures in Designer BLM Mold

What to learn

Learning objectives:

- Basic Designer BLM operation procedures
- Definition of wizard default
- How to determine the cooling system setting type

Moldex3D versión:

- All Moldex3D Designer BLM product

Recommended user :

- All Moldex3D Designer BLM user.

Designer BLM Mold Result Interpretation

What to learn

Learning objectives:

– Definition of result in flow, pack, cool, and warp

Moldex3D versión:

– All Moldex3D Designer BLM product

Recommended user:

– All Moldex3D Designer BLM user

Fix Surface Mesh Tool

What to learn:
Learning objectives:
– All definition of fix surface mesh tool in Designer BLM
– How operate to solve the surface mesh issue

Moldex3D versión:
– Moldex3D R15.0 Designer BLM

Recommended user:
– All Moldex3D Designer BLM user.

Introduction to Injection Molding and CAE

Introduction:
–Polymer Processing and Injection Molding
–Application and Common Problems

Main Factors on Injection Molding Process:
–Injection Molding Process and properties
–Scientific of Injection Molding–Traditional Trial and Error Method

Application of CAE in Injection Molding Process:
–Benefit of CAE

Moldex3D –Molding Innovation:
–Professional Team
–Developing Software.

Prerequisites:
Students attending this course should know about Plastic Materials

Introduction to Plastic Materials

Introduction to Plastic Materials:

–Classification of Plastics
–Some key material properties to affect Injection Molding Development
–Description of Moldex3D Material Databank

Learning objectives:

–Basic Plastic Materials properties
–Moldex3D Material Databank searching and usage

Recommended user:

–All Moldex3D user.

Prerequisites:

Students attending this course should know about Plastic Materials

Introduction to Part Design

Introduction:
–Part Design
–Part Design Consideration
–Part Design Guideline

Wall Thickness:
–Wall Thickness and Part Design
–Thickness Effect
–Wall Thickness and Shrinkage

Enhanced Structure by Ribs

Learning objectives:
–Basic part design guild

Recommended user:
–All Moldex3D user.

Introduction to Mold Design

Introduction to Mold Design:

–Gate Design
–Runner System Design
–Cooling SystemDesign

Mold Design Issues:

Mold Design

–No. Of Cavities
–Cavit Layout
–Runner System Design
–Gating Scheme
–No. of Gates
–Gating Location
–Mechanical/Mechanism Consideration

Cooling System Design:

–Cooling Chanel Layout
–Spacial Design

Learning objectives:

–Basic mold design guide
- How to select the gate and runner
- How to design the cooling system

Recommended user:

–All Moldex3D user

Introduction to Machine and Process Conditions

Introduction to Injection Molding Machine:

–Function and classification
–Different units

Introduction to Process Conditions:

–How to specify the process conditions
- Filling and switchover conditions
- Packing conditions
- Cooling conditions

Learning objectives:

–How to set the Flow and Pack inject properties
–How to control cooing time

Recommended user:

–All Moldex3D user

Analysis Procedures to eDesign

Introduciton to: eDesign Operation Procedures

Learning objectives:

–Basic eDesignoperation procedures

Recommended user:

–All Moldex3D user

Introduction to Moldex3D Designer Interface

Pre-processing in Moldex3D eDesign:

–Flow chart for basic eDesignoperation procedures

–Basic procedures (5-step) in Designer to prepare meshing model

- Step 1: Import Model
- Step 2: Build Runner System
- Step 3: Build Cooling System Design
- Step 4: Create Solid Mesh
- Step 5: Export Solid Mesh

Learning objectives:

–Detail of all Designer interface functions

Recommended user:

–All Moldex3D user

Fundamental of Moldex3D Project Interface

Flow chart for basic eDesig noperation procedures

Basic Operation Procedures to prepare the Project for Analysis:

-Step 1: Create A New Project
-Step 2: Create A New Run
-Step 3: Analysis Setting
-Step 4: Batch Run Setting

Introduction of toolbars and auxiliary functions in Moldex3D Project Interface:

-File IO Toolbar
-View Control Toolbar
-Standard View Toolbar
-Help Toolbar
-Display Toolbar
-Clipping Function-Slicing Function
-Iso-surface Display
-Report Wizard
-Export and copy run

Learning objectives:

-Detail of Moldex3D project interface functions

Recommended user:

-All Moldex3D user

eDesignResult Interpretation

Introduction to eDesignResult Interpretation:

–Interpretation of Filling Analysis Results
–Interpretation of Packing Analysis Results
–Interpretation of Cooling Analysis Results
–Interpretation of WarpageAnalysis Results

Learning objectives:

–Project result definition
–Flow defect reasons
–Product deformation causes

Recommended user:

–All Moldex3D user

eDesignin Connector Industry Application

Overview of Connector:

–Introduction to Connector
–Common Problems
–Connector Design & Process Optimization Issues

How Moldex3D Benefits:

–How Moldex3D Benefits Connector Design & Process Optimization
–A Case Study

Learning objectives:

–Weld line solving
–Flow Imbalance solving
–Poor packing effect

Recommended user:

–All Moldex3D user

Introduction to Solid

Content:

–Overview of Moldex3D/Solid
–Theory and mathematical methods
–Moldex3D/Solid-Module>Moldex3D/Solid Applications
–Conclusions

Learning objectives:

–Why use 3D mesh–Which 3D mesh types
–More advanced application in 3D mesh

Recommended user:

–All Moldex3D user

General concepts of plastic injection molding

Learning objectives:

–What plastic injection molding is

Plastics Injection Molding Process:

–Application and common problems
–Injection molding process and its features
–Major factors for injection molding process
–Specialized Injection Molding Processes
–Challenge in Injection Molding Industry

Recommended user:

–All Moldex3D user

Overview of plastic injection mold

Introduction:

–Gate Design
–Runner System Design
–Cooling System Design

Learning objectives:

–Basic mold design guide
- How to select the gate and runner
- How to design the cooling system

Recommended user:

–All Moldex3D user

Overview of Molding Machine and Process Window

Introduction to Injection Molding Machine:

–Function and classification
–Different units

Introduction to Process Conditions:

–How to specify the process conditions
- Filling and switchover conditions
- Packing conditions
- Cooling conditions

Learning objectives:

–How to control the injection process conditions

Recommended user:

–All Moldex3D user

Common Molding Problems and Solutions

Content

Flow / Pack:

–Short Shot–Hesitation
–Flow Unbalance–Welt Line & Melt Line
–Air Trap–Jetting–Thermal Degradation
–Sink Mark & Void–Flow mark
–Burn Mark–Flash

Warp:

–Warpage
–Residual Stress

Learning objectives:

–How to solve the flow defects and cause reason
–Why Warp deformation

Recommended user:

–All Moldex3D user

Overview of Thermoplastics

Introduction to: Thermoplastics

Learning objectives:

–What Thermoplastic Materials is

–What Amorphous and Crystalline is

Recommended user:

–All Moldex3D use or Plastics Knowledge

Polymer Rheologyand Physical Properties of Thermoplastics

Introduction to: Polymer Rheologyand Physical Properties of Thermoplastics

Learning objectives:

–What RheologyProperties of Thermoplastics is
–What Thermal Properties of Thermoplastics is
–What PVT Properties of Thermoplastics is
–What Mechanical Property of Thermoplastics is

Recommended user:

–All Moldex3D user

Overview of Thermoset

Introduction to: Thermoset

Learning objectives:

– What ThermosetMaterials is

Recommended user:

–All Moldex3D use or Plastics Knowledge

Polymer Rheologyand Physical Properties of Thermoset

Introduction to: Polymer Rheologyand Physical Properties of Thermoset

Learning objectives:

–What Polymer Rheologyand Physical Properties of Thermosetis

- ·What Chemorheologyis·What PVT-C is
- ·What Mechanical Property is

Recommended user:

–All Moldex3D user

Introduction to CAE and Finite Element Volume Analysis

Introduction:

–Polymer processing and injection molding

–Application and common problems

–Injection molding process and properties

Main factors on injection molding process

How to deal with injection molding process:

–Traditional trial and error method

–Scientific CAE method–Finite element/volume method

Application of Moldex3D in Injection Molding Process

Prerequisites: None

General Concepts of CAE Application on Plastic Molding

Overview of CAE application on plastic molding:

–Introduction to CAE application cases

- Communication
- LCD monitor
- Connector
- Optical Industry

How Moldex3D Benefits:

–How Moldex3D Benefits

–Case Study

Learning objectives:

–What CAE is

–How to compare with real

Recommended user:

–All Moldex3D user

Introduction to Moldex3D Entire Products and Features

Learning objectives:

–Overview of Moldex3D

- About Moldex3D
- Moldex3D Brand Vision & Core Value

–Moldex3D Portfolio and Special Advantages

Recommended user:

–All Moldex3D user.

Gate Design

The link between the part and the runner:

–Many Design Options–Limited Location Flexibility

Major Consideration:

–Size, shape, and placement of gate can significantly affect the ability to successfully mold a producto

–Automatic degatingis usually desirable

Learning objectives:

–Basic Idea of Gate Design

Recommended user:

–All Moldex3D user

Runner Design

Runner System Design:

–Runner System
–Sprue–Runner (Primary/Secondary)
–Gate

Goal

Design Consideration

Common Runner Design:

–Circular Runner
–Full Round Runner
–Parabolic Runner
–U-Type or Modified Trapezoidal Runne
–Trapezoidal Runner
–Half Round Runner
–Rectangular Runner

Learning objectives:

–Normal Idea of Runner Design

Recommended user:

–All Moldex3D user

Part Design Guideline

Part Design Consideration:

Product design

–Material properties
–Functionality
–Structural design

Knowledge of Part Design:

–Golden rule(Uniform wall thickness)
–Thickness V.S. Flow length–Radius/fillets & Chamfer angle
–Rib design–Boss design
–Draft angle design (拔模角)
–Other: Shrinkage, Hot spot

Learning objectives:

–Three main factors of product design
–Basic Part Feature Design Guidelines

Recommended user:

–All Moldex3D user

Overview of Flow/Pack Analysis

Flow Introduction:

–Functions of Flow Simulation
–Problems associated with Filling Stage
–Filling Analysis Background

Pack Introduction:

–Functions of Pack Simulation
–Causes affecting Packing
–Packing Analysis Background

Case study:

–Automobile case

Learning objectives:

–Process effect of Filling and Packing

Recommended user:

–All Moldex3D user

Flow/Pack Analysis Guideline

Flow/Pack Analysis Flow Chart:

–Determine gate number and location
–Determine gate type
–Determine Runner Layout and Size
–Part Design Verification
–Select Material
–Run Simulation
–Check the filling/packing issues

Learning objectives:

–Optimize part design following Analysis Flow Chart
–Filling defect prediction in Moldex3D

Recommended user:

–All Moldex3D user

Material Database Searching

Introduction of Material Wizard Interface

Learning objectives:

–Searching a material

Recommended user:

–All Moldex3D user

Molding Process Conditions Input

Contents

Process Conditions Required for Fill/Pack Analysis:

–Filling Time–Injection Pressure

–Packing Time–Packing Pressure

–Melt Temperature–Mold Temperature

–VP switch-over>Filling/Packing Advanced Setting

–Mold Boundary Condition (Heat Transfer Coefficient)

–Injection Options

Input Process Parameters via User Interface

Real Machine Interface

Learning objectives

–Moldex3D project process setting methods

Recommended user:

–All Moldex3D user

Examine Analysis Results and Result Interpretation

Content:

Interpretation of Filling Analysis Results
Interpretation of Packing Analysis Results
Interpretation of Cooling Analysis Results
Interpretation of Warpage Analysis Results

Learning objectives:

–Project result definition
–Flow defect reasons
–Product deformation causes

Recommended user:

–All Moldex3D user

Hot Runner Design

Content:

Introduction to Hot Runner Technology
Hot Runner System Development
Conclusions

Learning objectives:

–Basic Hot Runner Technology
–Hot Runner System Development

Recommended user:

–All Moldex3D user

Cooling System Design

Introduction
–Cooling Process and Behavior

Key Feature for Cooling Design
–Cooling System Components
–Cooling Channel Types–Design Parameters
–Example

Conformal CoolingManufacturing

Learning objectives
–Basic cooling technology
–What conformal cooling is

Recommended user:
–All Moldex3D user

Multiple Cavity and Family Tools

Introduction

Tooling can contain one or multiple cavities. The cavities can produce the same part or different parts in a single shot. A tool producing more than one cavities of the same parts is called a multiple-cavities-tool. In the other hand, tool producing different parts belong to the same product called a family tool.

Multiple cavities:

Produce multiple parts by single shot. A multiple cavities mold commonly consist of 2, 4, 8, 16, 32, and 64 cavities or more.

Family tool:

Produce different parts within a single mold. In addition, all the parts are related.

Learning objectives:

–How to design multiple cavities runner system

Recommended user:

–All Moldex3D user

Hot Runner System Analysis

Content:

Conventional Hot Runner Analysis
Hot Runner Steady Filling Analysis
Advanced Hot Runner Analysis

Learning objectives:

–Hot Runner Analysis Process Setting
- Conventional Hot Runner
- Hot Runner Steady Filling
- Advanced Hot Runner

Recommended user:

–All Moldex3D user

Overview of Cooling analysis

Contents:

Basic Moldex3D Cool Analysis Functions
Effect of Cooling Process
Parameters of Cooling System
Cooling Analysis Results

Cool Analysis Functions:

–Validate cooling design
    •Which design best fit your need?
–Predict required cooling time•How much cooling time was saved?
–Simulate the mold/part temperature distribution at any instance in 3D
    •Help to find out the hot spots
–Monitor mold temperature variation
    •Help to understand cooling rate difference and mold response time
–Evaluate the cooling effect on product defects
    •Such as warpage, sink mark improvement

Recommended user:

–All Moldex3D user

Overview of Warpage Analysis

Contents

Brief Overview:

–WarpageDefinition

–BenefitsofWarpagePredictionUsingMoldex3D

–FactorsAffectingShrinkageandWarpage

EffectsofMaterialSelection:

–PVTEffect–CrystallineandNon

–CrystallinePolymers

–UnfilledandFiber

–FilledPolymers

EffectsofPartDesign:

–PartGeometry

–PartThickness

Learning objectives:

–Four main factors effect warpage

–How to control those factors

Recommended user:

–All Moldex3D user

Overview of Stress Analysis

Introduction

Theoretical background of Stress Analysis

Moldex3D Stress Module Functionality Highlight:

–Consider fiber orientation–Core shift analysis (MCMtab)
–Consider weld line effect (Stresstab)
–Paddle shift analysis (Encapsulationtab)
–Annealing analysis capability (Stresstab)
- Linear
- Viscoelastic
- Fiber

–Mold deformation analysis

Learning objectives:

–Stress Analysis Theory
–Application stress analysis in advanced modules

Recommended user:

–All Moldex3D user

Introduction

This course will teach you how to develop fully functional NC post-processors quickly and efficiently. With the help of comprehensive manuals, participants will have the opportunity to create, test and debug a milling post-processors in class.

Introduction to structure and modules

Creation of a post-processor

Compilation, testing and debugging

Perequisites:

Basic knowledge of Post-processors

Macro Development

This course will teach you how to develop fully functional NC post-processors quickly and efficiently. With the help of comprehensive manuals, participants will have the opportunity to create, test and debug a milling post-processors in class.

Introduction to macro language

Macro exercises and examples

Introduction to post-processor functions

Perequisites:

Basic knowledge of Post-processors

Exercises, Installation & Setup

This course will teach you how to develop fully functional NC post-processors quickly and efficiently. With the help of comprehensive manuals, participants will have the opportunity to create, test and debug a milling post-processors in class.

Introduction to macro language

Macro exercises and examples

Introduction to post-processor functions

Perequisites:

Basic knowledge of Post-processors

Your Post-Processor

This course will teach you how to develop fully functional NC post-processors quickly and efficiently. With the help of comprehensive manuals, participants will have the opportunity to create, test and debug a milling post-processors in class

Develop a post-processor for your NC machine

Testing and debugging

Perequisites:

Basic knowledge of Post-processors

Advanced Macro Programming

This advanced training session divided into two modules: The Advanced Macro Programming Course, and The Advanced Machine Configuration Course.

Content:

- Review of the macro language
- Rapid Macro Development Tool
- String manipulation & PPFUN
- Look ahead techniques
- Startup/shutdown macros
- User-defined macros

Perequisites:

We recommend users complete our Basic Training course before attending our Advanced Training

Advanced Macro Programming

This advanced training session divided into two modules: The Advanced Macro Programming Course, and The Advanced Machine Configuration Course.

Content:

- File I/O & TAPERD & TAPEWT
- Tape macro & editor
- System variables and functions
- Sub programs & advanced debugger

Perequisites:

We recommend users complete our Basic Training course before attending our Advanced Training

Advanced Macro Configurations

This advanced training session divided into two modules: The Advanced Macro Programming Course, and The Advanced Machine Configuration Course.

Content:

– Mill-turn machines
– Multi-channel machines
– Head Attachments
– High Speed Machining
– Flame, punch, cutters and laser machines
– Composite post-processors
– Wire EDM post-processors
– Probing integratio

Perequisites:

We recommend users complete our Basic Training course before attending our Advanced Training