

# Training Course MECANICA SOLUTIONS CATIA V5 GPS/GAS GENERATIVE STRUCTURAL ANALYSIS; FUNDAMENTAL, EXPERT & ASSEMBLY



OBJECTIVE: This course covers the main tools for Structural Analysis on a single part. Throughout this course, you will learn how to perform a basic static analysis using the finite elements method. Upon completion of this course you will be able to: Define and customize material properties, Apply pressure, acceleration and force density loads; define virtual parts, Apply pivot, ball-joint, and user-defined restraints, Compute a frequency analysis for a single part, Create planar sections with which to visualize internal result values, Compute and refine a mesh using adaptive meshing in order to achieve a pre-defined accuracy.

# **DURATION 3 DAYS**

## STUDENT PROFILE: CATIA V5 MECHANICAL DESIGNERS PRE-REQUISITES: V5 FUNDAMENTALS

TOPIC & DETAILS	TOPIC DURATION
Generative Part Structural Analysis Fundamental	l Day
Introduction to Finite Element Analysis	
<ul> <li>What is Finite Element Analysis,</li> </ul>	
Why to Use Finite Element Analysis	
Application of Finite Element Analysis	
Introduction to GPS Analysis	
<ul> <li>Accessing the Generative Part Structural Analysis Workbench</li> </ul>	
<ul> <li>The Generative Part Structural Analysis Interface</li> </ul>	
The GPS General Process	
• The Generative Part Structural Analysis Tree Structure	
GPS Pre-Processing	
<ul> <li>Managing Mesh-Part,</li> </ul>	
Defining Restraints, Defining Loads	
Computation	
<ul> <li>Specifying the External Storage</li> </ul>	
Computing a Static Case	

Register on-line or call 1-888-326-8326 Information contained within is subject to change. All classes are dependent on minimum enrollment





# **TOPIC & DETAILS**

# **TOPIC DURATION**

# Generative Part Structural Analysis Fundamental (cont'd)

#### **GPS Post-Processing**

- Results Visualization
- Results Management
- Refinement

#### Managing Analysis

- About Saving an Analysis Document,
- About Save As
- How to Use Save Management

SAVING DOCUMENT USING 'SEND TO' MECHANISM, USER SETTINGS

## **Generative Part Structural Analysis Expert**

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

## **GPS Advanced Pre-Processing Tools**

- Advanced Pre-Processing Tools
- Frequency Analysis

## Computation

- Computing a Frequency Case
- Computing with Adaptivity
- Historic of Computation

## GPS Advanced post-Processing Tools

- Results Visualization
- Results Management

REFINEMENT

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# **TOPIC & DETAILS**

## Generative Assembly Structural Analysis

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

#### Introduction to GAS

- Generative Assembly Structural Analysis Overview
- Hypotheses Used for Analysis

#### Analysis Connections

- Analysis Connection using Assembly Constraints
- General Analysis Connection
- Defining Line Analysis Connections
- Defining Point Analysis Connections, Defining Surface Analysis
- Connections Points to Points Analysis Connection
- Set of Analysis Connections

#### **GAS** Connection Properties

- Face to Face Connection Properties
- Distant Connection Properties
- Welding Connection Properties
- Nodes to Nodes Connection Property

#### Compute a Static Analysis for an AssemblyAnalysis Assembly Management

CREATE AND MANAGE AN ANALYSIS ASSEMBLY MODEL USING EXISTING MESHED PARTS

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## **TOPIC DURATION**

1 Day