Advanced Catia V5

Organizations that utilize the Catia V5 Computer Aided Design (CAD) system to develop their products are using a cutting edge system that help analyze, validate and document products utilized throughout the complete product life cycle. This course is focused on training the existing Catia V5 user by expanding their skills and techniques to further utilize advanced features of the CAD system.

This course consists of multiple modules that are structured in a pedagogical sequence, covering the Part, Assembly, Drafting, and Generative Sheet metal Design workbenches of CATIA V5.

Participants will bring information on specific company projects to be worked on during this training for real application of these concepts, tools and techniques.

- First, every module is covered and they begin with a section that provides a detailed explanation of the commands and tools in Catia V5R19.

- Next, the command section is followed by tutorials that are created using these commands. This approach allows the student to use the text initially as a learning tool and then later as reference material.

- Lastly, the students will work on specific projects that show the preferred method of application of Catia V5R19 for their job requirements.
Course Syllabus

I. IDENTIFYING INFORMATION

Course: Advanced Catia V5
Prerequisite: Design or Engineering experience
Basic computer skills
Time Frame: 40 total contact hours
Instructor: Lee Kittredge
Dassault Certified Catia V5 instructor
20 years in the CAD field
Mobile: (248) 844-9090
E-mail: lee@cpspoly.com

II. REFERENCE MATERIALS

1. CATIA V5 for Designers by: Sham Tickoo and Vivek Singh

III. COURSE GOALS AND OBJECTIVES

1. Create and edit surfaces
2. Create and edit assemblies
3. Prepare Catia drawings of Parts and Assemblies
4. Create and edit sheet metal components
5. Create and animate mechanism
6. Use advanced assembly functions
7. Use advanced GSD functions
IV. METHODOLOGY

This course provides the solid fundamentals of the CAD tool to prepare the student for more specific and advanced functions. Each module will introduce new material that will prepare the student for the projects to be completed.

Lectures

Each detailed subject will be presented in a lecture format outlining the theory and standardized accepted methodology. A PDF file of the lecture material will be provided for the student’s personal use as reference material. Lecture note outlines will be distributed to the students for each lecture to help the student capture personal notes.

Specific Industry Examples

Real life industry examples will be covered that detail out the application of the theory to demonstrate how different companies apply these tools and techniques. This will give the students a clear understanding of how and why these techniques are utilized at different companies and industries in different manners.

In-Class Assignments

Using the theory and industry examples the student will conduct several projects that outline each key principal on in-class projects. These projects will increase in complexity as the students further develop their skills in applying these tools and techniques.
V. **COURSE OUTLINE AND ASSIGNMENTS**

**Module 1: Editing and Modifying Surfaces**
- Projecting curves
- Intersection curves
- Heal, Extract
- Transformations
- Extrapolation
- Chapter 11 Tutorials 1 and 2

**Module 2: Assembly Modeling**
- Product files
- Building Assemblies
- Moving components
- Assembly constraints
- Interpart modeling
- Exploded assemblies
- Creating a scene
- Chapter 12 Tutorials 1 and 2

**Module 3: Working with the Drafting Workbench-I**
- Drawing files
- Creating views
- Editing Views
- Chapter 13 Tutorials 1 and 2

**Module 4: Working with the Drafting Workbench-II**
- Inserting frames and title blocks
- Annotating drawings
- Bill of Material
- Generating Balloons
- Chapter 14 Tutorials 1 and 2

**Module 5: Sheet Metal Parts**
- Sheet metal parameters
- Walls
- Flanges
- Bends and Folding
- Unfolding
- Stamping
- Chapter 15 Tutorials 1-4
Module 6: DMU Kinematics
Designing a Mechanism Discussion
Joints Discussion
Joints from assembly constraints Discussion
Chapter 16 Tutorials 1-4, Exercises 1 and 2 Assignment

Module 7: Advanced Assemblies I
Link management Discussion
Flexible sub-assemblies Discussion
Clearance analysis Discussion
Advanced Assemblies Projects 1 and 2 Assignment

Module 8: Advanced Assemblies II
Assembly features Discussion
Hole Series Discussion
Publishing elements Discussion
Skeleton models Discussion
Advanced Assemblies Projects 3 and 4 Assignment

Module 9: Advanced GSD I
Bump Discussion
Warp curve Discussion
Warp surface Discussion
Shape Morphing Discussion
Developed Shapes Discussion
Advanced GSD Projects 1 and 2 Assignment

Module 10: Advanced GSD II
Junction Discussion
Diabolo Discussion
Mating Flange Discussion
Bead Discussion
Laws Discussion
Advanced GSD Projects 3 and 4 Assignment