



## 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@cspoly.com](mailto:lee@cspoly.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	Discussion
Intersection curves	Discussion
Heal, Extract	Discussion
Transformations	Discussion
Extrapolation	Discussion
Chapter 11 Tutorials 1 and 2	Assignment

**Module 2: Assembly Modeling**

Product files	Discussion
Building Assemblies	Discussion
Moving components	Discussion
Assembly constraints	Discussion
Interpart modeling	Discussion
Exploded assemblies	Discussion
Creating a scene	Discussion
Chapter 12 Tutorials 1 and 2	Assignment

**Module 3: Working with the Drafting Workbench-I**

Drawing files	Discussion
Creating views	Discussion
Editing Views	Discussion
Chapter 13 Tutorials 1 and 2	Assignment

**Module 4: Working with the Drafting Workbench-II**

Inserting frames and title blocks	Discussion
Annotating drawings	Discussion
Bill of Material	Discussion
Generating Balloons	Discussion
Chapter 14 Tutorials 1 and 2	Assignment

**Module 5: Sheet Metal Parts**

Sheet metal parameters	Discussion
Walls	Discussion
Flanges	Discussion
Bends and Folding	Discussion
Unfolding	Discussion
Stamping	Discussion
Chapter 15 Tutorials 1-4	Assignment



**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