



## Advanced Unigraphics NX7

Organizations that utilize the Unigraphics NX7 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.

Unigraphics NX7 course covers fundamentals through more advanced features of NX7. Keeping in mind the requirements of the users, the course first introduces sketching and part modeling in NX7, and then gradually progresses to cover assembly and drafting. The course is a series of tutorials and emphasizes hands on exercises and activities. The course provides an excellent introduction to NX7 and sets a strong foundation for gaining skills in more advanced features. The text stands as a valuable resource beyond the scope of the course.

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 Unigraphics NX7.
- 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 Unigraphics NX7 for their job requirements.



## Course Syllabus

### I. IDENTIFYING INFORMATION

**Course:** Advanced Unigraphics NX7  
**Prerequisite:** Design or Engineering experience  
Basic computer skills  
**Time Frame:** 40 total contact hours, 5 modules will be covered  
**Instructor:** Lee Kittredge  
Lead CAD Instructor  
20 years in the CAD field  
**Mobile:** (248) 844-9090  
**E-mail:** [lee@cspoly.com](mailto:lee@cspoly.com)

### II. REFERENCE MATERIALS

1. NX7 for Designers, by Sham Tickoo and Amol P. Kanthe

### III. COURSE GOALS AND OBJECTIVES

1. Understanding and application of advanced solid modeling techniques
2. Understanding and application of creating assemblies and surfaces
3. Understanding and application of creating drawing views with bill of materials
4. Understanding and application of essential design editing techniques



#### **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.

##### **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. The students will present their work to the group for review and discussion.



**V. COURSE OUTLINE AND ASSIGNMENTS**

**Module 1: Assembly Environment I**

Assembly Navigator	Discussion
Assembly Templates	Discussion
Reference Sets	Discussion
Bottom-Up Assemblies	Discussion
Assembly Constraints	Discussion
Component Operations	Discussion
Chapter 9 Tutorials 1-2, Exercise 1- 3	Assignment

**Module 2: Assembly Environment II**

Top-Down Assemblies	Discussion
Sub-Assemblies	Discussion
Interference Analysis	Discussion
View Section Tool	Discussion
Exploded Views	Discussion
Chapter 10 Tutorials 1-4	Assignment

**Module 3: Surface Modeling I**

Through Curve	Discussion
Through Curve Mesh	Discussion
N-sided	Discussion
Swoop	Discussion
Styled Sweep	Discussion
Styled Blend	Discussion
Silhouette Flange	Discussion
Law Extension	Discussion
Trim and Extend	Discussion
Sew	Discussion
Thicken	Discussion
Chapter 11 Tutorials 1 and 2, Monitor Project	Assignment

**Module 4: Surface Modeling II**

Curves from Bodies	Discussion
Dart, Emboss	Discussion
Face Blend	Discussion
Soft Blend	Discussion
Fillet	Discussion
Bridge	Discussion
Chapter 12 Tutorial 1, Exercise 1	Assignment
Hair Dryer Project	Assignment



**Module 5: Surface Modeling III**

Splines	Discussion
Surface from Points	Discussion
Editing Surfaces	Discussion
Evaluating Surfaces	Discussion
Hood Project	Assignment
Canoe Project	Assignment
Evaluate and Edit Project	Assignment

**Module 6: Drafting**

Drafting Environment	Discussion
Views	Discussion
Annotations	Discussion
Tables	Discussion
Templates	Discussion
Bill of Materials	Discussion
Chapter 13 Tutorials 1-3, Exercises 1 and 2	Assignment

**Module 7: Synchronous Modeling**

Face Operations	Discussion
Constraints	Discussion
Shell Body	Discussion
Shell Face	Discussion
Chapter 14 Tutorials 1 and 2, Exercises 1 and 2	Assignment

**Module 8: Advanced Assemblies**

Context Control	Discussion
Arrangements	Discussion
Sequencing	Discussion
Clone	Discussion
Wrap Assembly	Discussion
Linked Exterior	Discussion
Simplify	Discussion
Zones	Discussion
Load Options	Discussion
Advanced Assembly Projects 1-3	Assignment



**Module 9: Advanced Methods**

Expressions	Discussion
User Defined Features	Discussion
Part Families	Discussion
Deformable Parts	Discussion
Stringer Project	Assignment
Deformable Spring Project	Assignment
UDF Project	Assignment

**Module: 10 Analysis Functions**

Strength Wizard	Discussion
Model Compare	Discussion
Formability Analysis	Discussion
Sensitivity Study	Discussion
Optimization Study	Discussion
Analysis Projects 1 and 2	Assignment