



Dr. Jeffery Foster  
Manager Educational Programs

# Delcam Education

# Company History

- 1960s** Initial research at Cambridge University
- 1970s** Development taken over by Delta Group
- 1980s** Software sales start
- 1991** New HQ, Birmingham, UK  
**Queen's Award for International Trade**
- 2001** Alcam joins Delcam
- 2003** **Queen's Award for Innovation** awarded for **ArtCAM**
- 2004** **Queen's Award for Innovation** awarded for **PowerINSPECT**
- 2005** FeatureCAM joins Delcam  
**2nd Queen's Award for International Trade**
- 2006** PartMaker joins Delcam
- 2007** Crispin joins Delcam
- 2009** 30,000<sup>th</sup> Customer
- 2010** **3<sup>rd</sup> Queen's Award for Innovation** awarded for **Dental**  
35,000<sup>th</sup> Customer
- 2011** **3<sup>rd</sup> Queen's Award for International Trade**
- 2013** 45,000<sup>th</sup> Customer
- 2013** Delcam University launched
- 2014** Delcam acquired by Autodesk



FeatureCAM

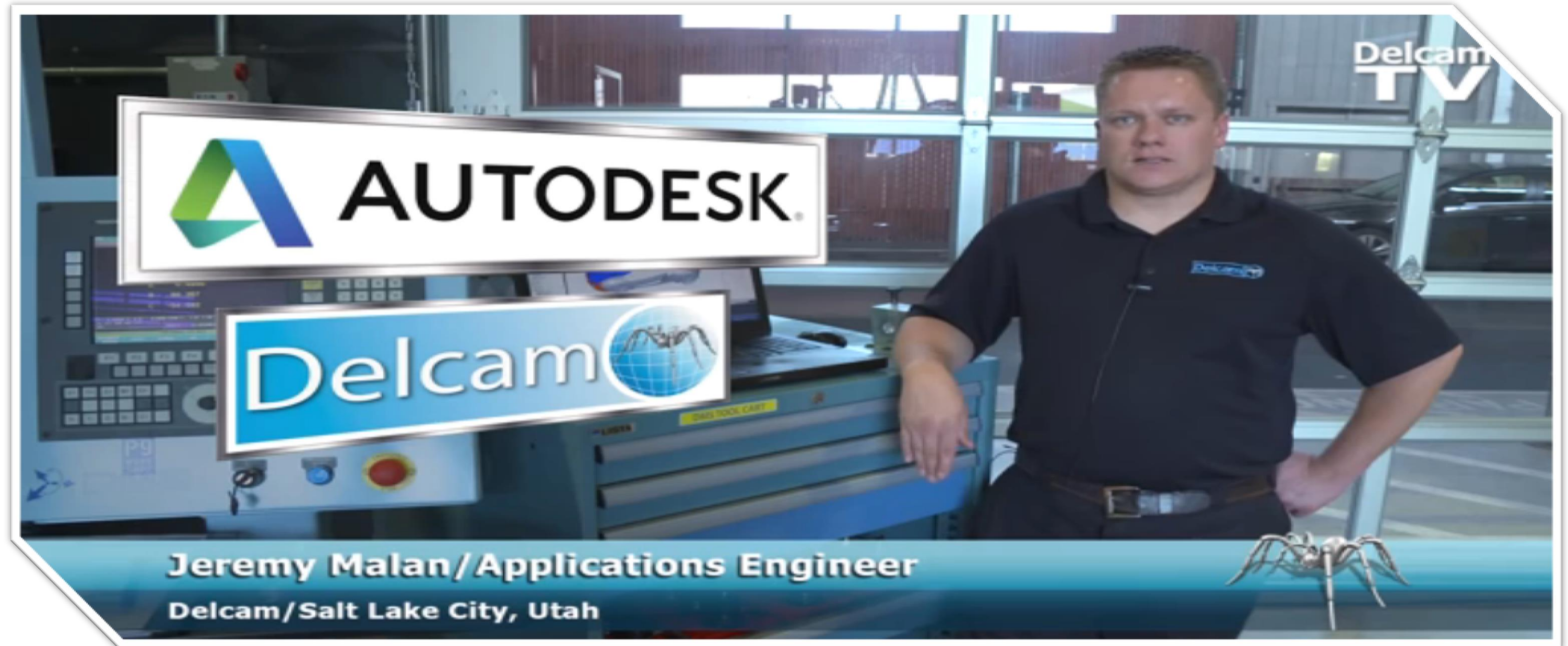
PartMaker



University









- Involvement with:
  - SkillsUSA & SkillsCANADA
  - HTEC (Haas Technical Education Center)
  - CITEA (California Industrial and Technology Education Association)
  - ACTE (Association for Career and Technical Education)
  - IMTS (International Manufacturing Technology Show)
  - ASEE (American Society for Engineering Education)
  - ITEEA (International Technology and Engineering Educators Association)
  - TSA (Technology Student Association)

# Delcam Education

## SkillsUSA Involvement

Delcam Education annually donates around 1200 Delcam U seats (a commercial value of over \$250,000) as both state and national prizes for the top 3 placements in the following competitions:

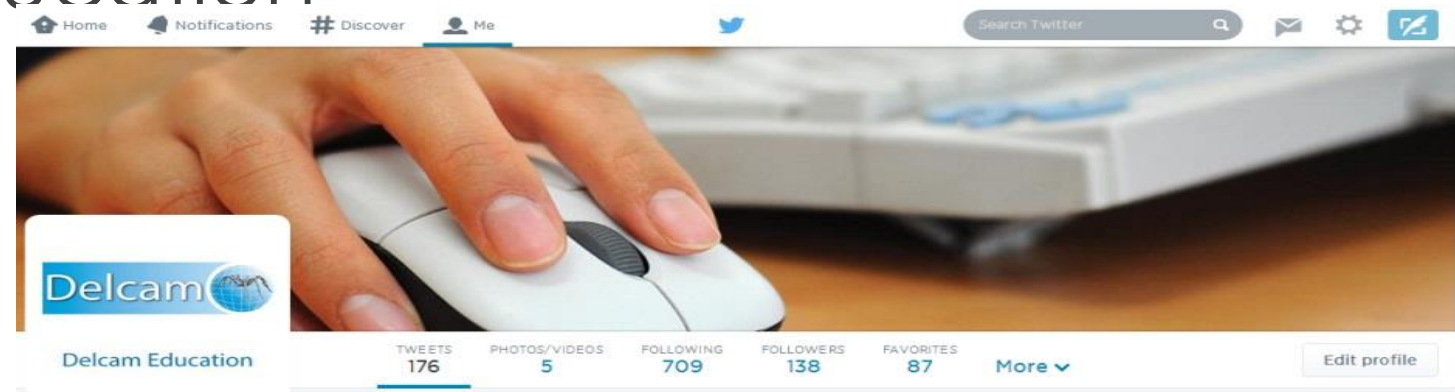
- Automated Manufacturing
- CNC Milling
- CNC Turning
- Precision CNC Machining



# Delcam Education

## Social Networking

- We have dedicated social media feeds for our education related efforts
- Facebook
  - [facebook.com/DelcamEducation](https://facebook.com/DelcamEducation)
- Twitter
  - [@DelcamEducation](https://twitter.com/DelcamEducation)
- “Like” or “tweet” us!!!!
- Share your Delcam accomplishments and stories on our feeds!





- **FeatureCAM DTC One Year Desktop Subscription**

- FeatureCAM on-line documentation
- 1 Master CD of FeatureCAM software (including FeatureMILL 2.5D, 3D, and FeatureTURN)
- 1 Network Dongle
- **Minimum 5 licenses.**
- **Cannot be used for commercial purposes.**

- **Delcam for SolidWorks DTC One Year Desktop Subscription**

- Delcam for SolidWorks on-line documentation
- 1 Master CD of Delcam for SolidWorks (DFS) software (including DFS 2.5D, 3D, and Turn)
- 1 Network Dongle
- **Minimum 5 licenses.**



# Delcam Training Center

FREE Offering

- **Delcam University Online Classes**
  - Access to one Delcam University 2.5D milling online class for a single quarter or semester per student.
  - **Free access for one instructor is included.**
- Network Server Software (One-time fee only, no annual maintenance)
- Replacement for Lost Dongle - \$200

# Delcam Training Center

## Requirements

- Not disclose or make available the information contained in the software or the documentation or permit use of the software or documentation by anyone other than students, employees, or agents of the School in conjunction with training and education provided by the School.
- Use at least five copies of Delcam software in training its students.
- Offer a minimum of one (1) educational training course annually, with an accumulated duration of at least twenty-four (24) hours of training on Delcam software and CNC machining.



# Delcam Training Center

## Requirements

- Alter its training program to reflect any significant product changes within one hundred eighty (180) days after the release by Delcam USA to the School of a software update.
- Complete an annual online training update regarding Delcam latest software version.
- Ensure that the Delcam software is used only on the School's premises. Delcam Student Version, available via Delcam University, is excluded from this requirement.

# Delcam Training Center

## Requirements

- Protect the security dongle against theft. The school recognizes that they must pay \$200 to replace any dongle.
- Return its dongles if they discontinue their program or if requested by Delcam.
- School will service any needs for technical service and support through Delcam's support portal.

# Delcam Training Center

## Application Questions

- What type of educational facility is your school?
- Please give an explanation of your current curriculum as it relates to CNC machine training.
- Please give an explanation of how FeatureCAM and/or Delcam for SolidWorks will fit into your schools.
- How many students do you anticipate using the program?
- How many PCs do you desire to have FeatureCAM and/or Delcam for SolidWorks installed on in your classroom / lab?
- Is there other software(s) being used and taught in the classroom-lab? If so please list which ones.
- What type if CNC Machine(s) are used at your facility?

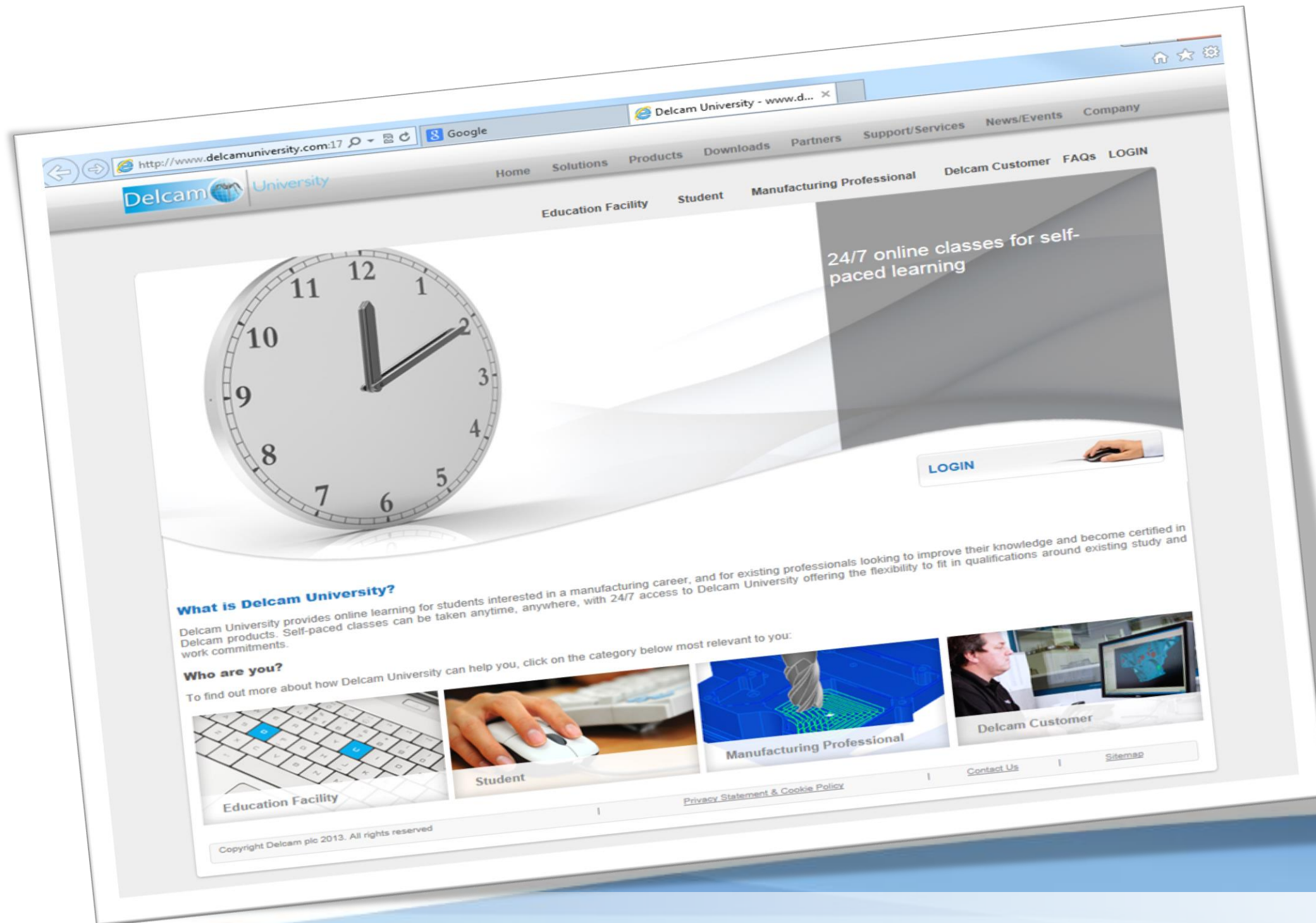


# Delcam University

## What is Delcam University?

- Seven Courses Total:
  - FeatureCAM 101: Introduction to 2.5D Milling
  - FeatureCAM 102: Introduction to Turning and Turn/Mill
  - FeatureCAM 201: Introduction to 3D Milling
  - Delcam for SolidWorks 101: Introduction to 2.5D Milling for DFS
  - Delcam for SolidWorks 102: Introduction to Turn/Mill for DFS
  - Delcam for SolidWorks 201: Introduction to 3D Milling for DFS
  - ArtCAM 103: Introduction to ArtCAM

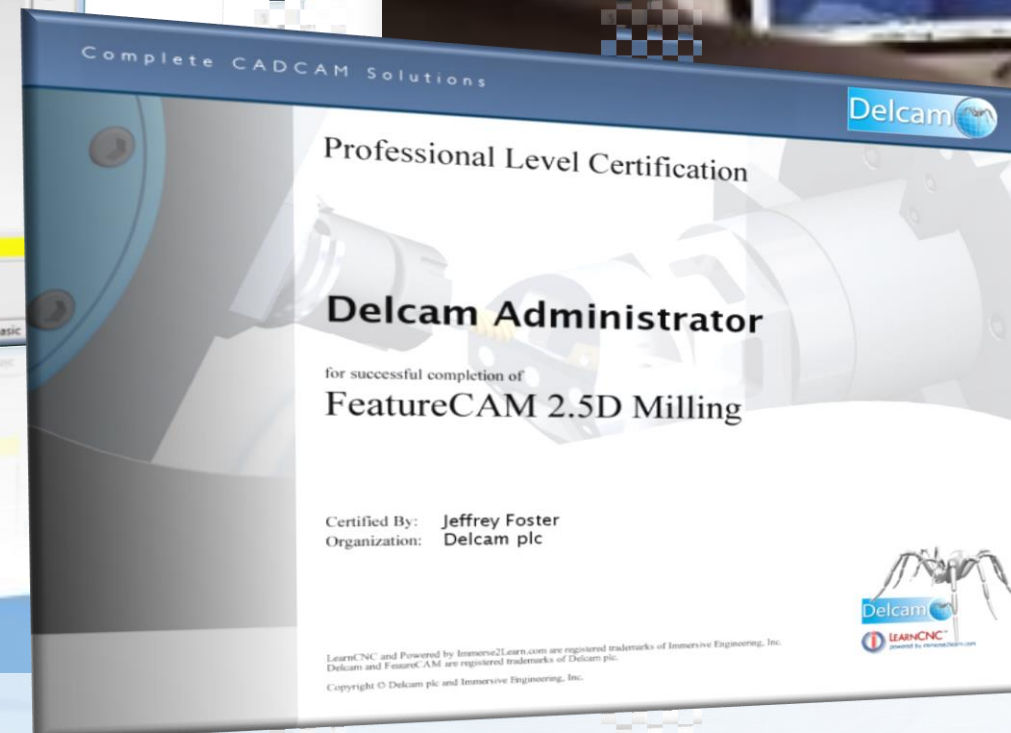
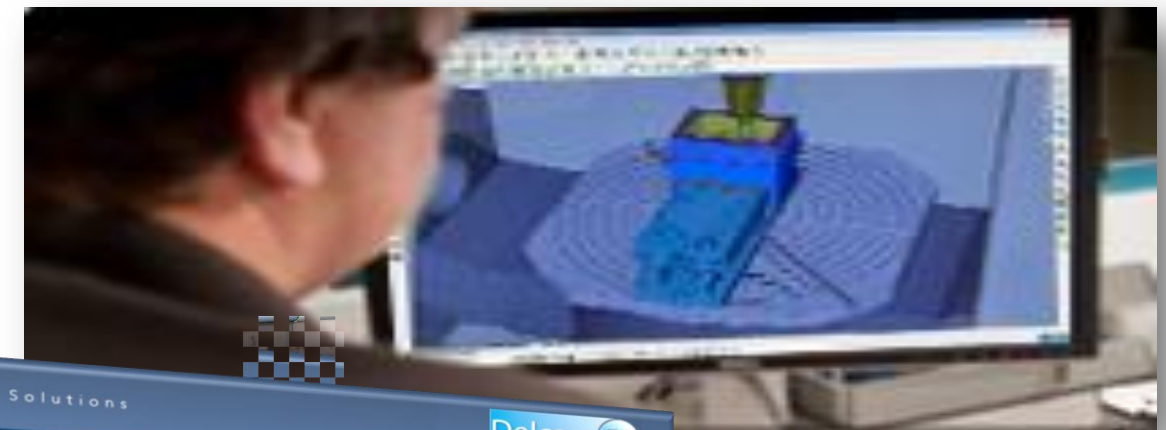
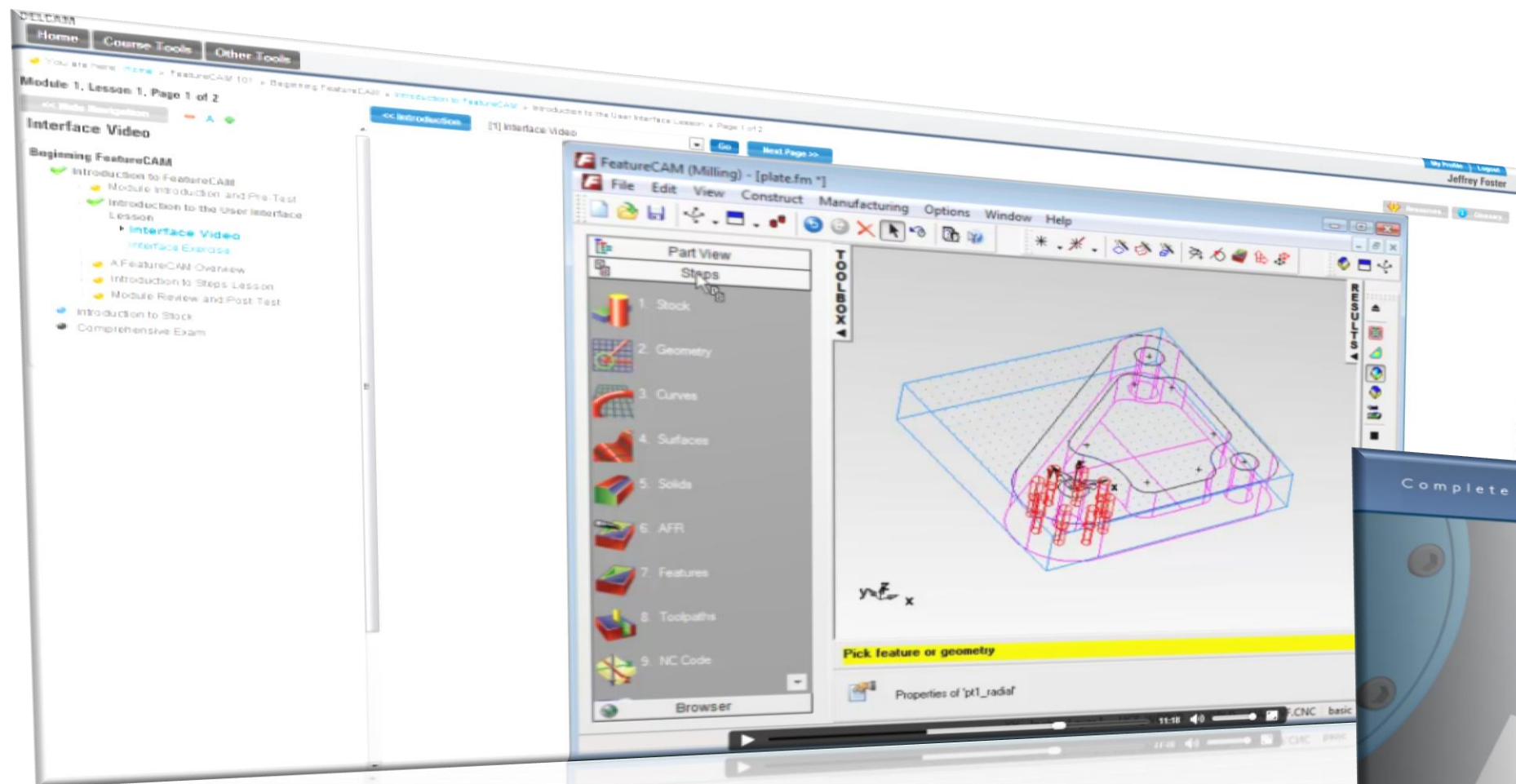




# Delcam University

## What is Delcam University?

Delcam University is an online learning environment enabling users to earn Delcam product certification at their own pace







# Delcam University

## Getting Started | Login Page

To begin, each user is designated a unique username and password giving access to their personalized learning environment

A screenshot of the Delcam University login page. At the top, the Delcam logo is displayed with the tagline "Complete CAD/CAM Solutions". Below this, there is a central white box containing a login form. The form has two input fields: "Username:" and "Password:", each followed by a text box. Below the password field is a blue "Login" button. At the bottom of the white box, there is a line of text: "Use the buttons below to register or recover your user information." followed by "Flash Player 11.602 detected." in smaller text. At the very bottom of the page, there are two blue buttons: "New User Registration" on the left and "Get User Info" on the right.

**Delcam**  
Complete CAD/CAM Solutions

Username:

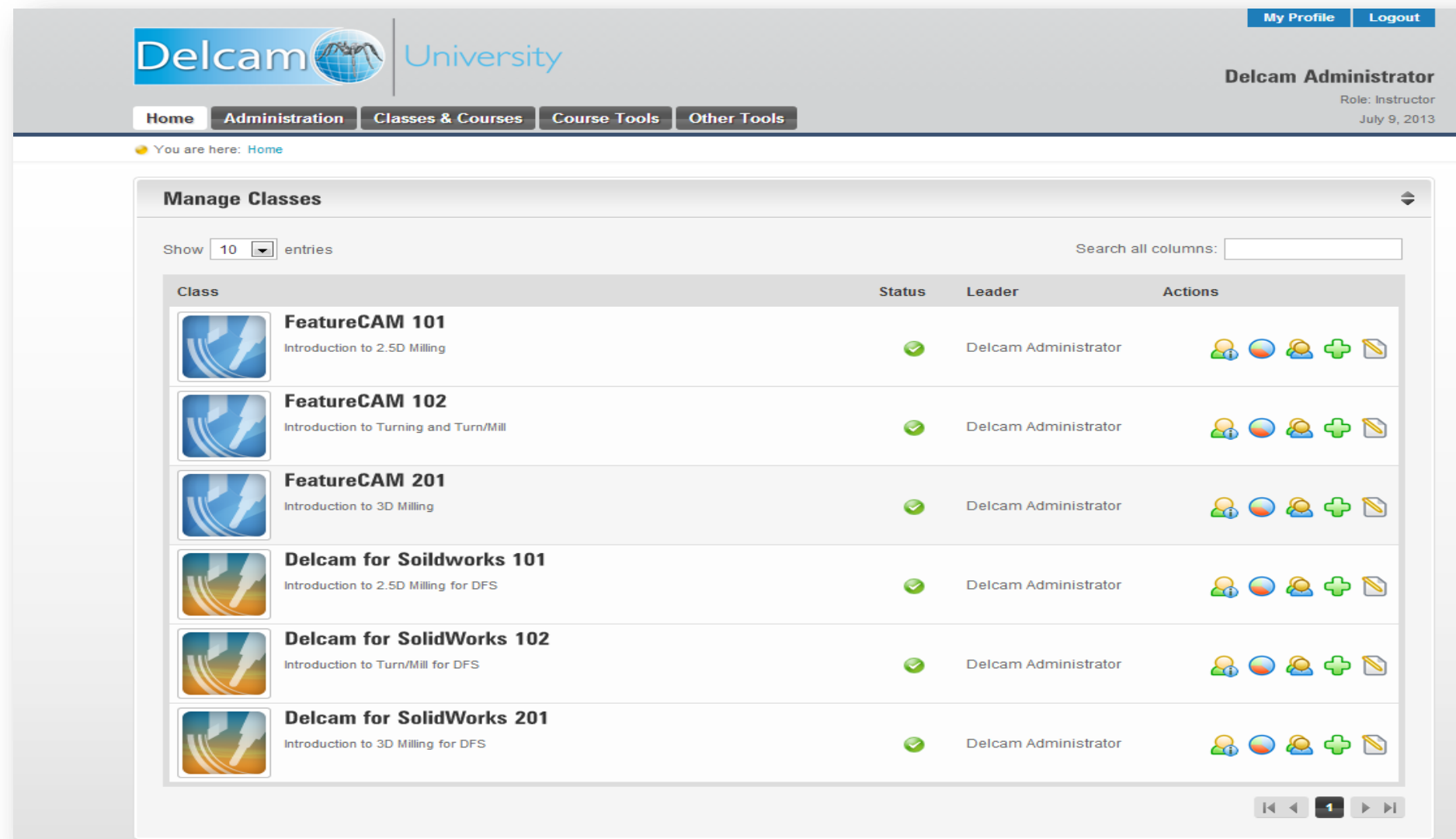
Password:

**Login**

Use the buttons below to register or recover your user information.  
Flash Player 11.602 detected.

**New User Registration** **Get User Info**

Once logged in, classes available to the user are immediately visible and easily accessible



**Delcam University** My Profile Logout































**Delcam Administrator**  
Role: Instructor  
July 9, 2013

[Home](#) [Administration](#) [Classes & Courses](#) [Course Tools](#) [Other Tools](#)

You are here: [Home](#)

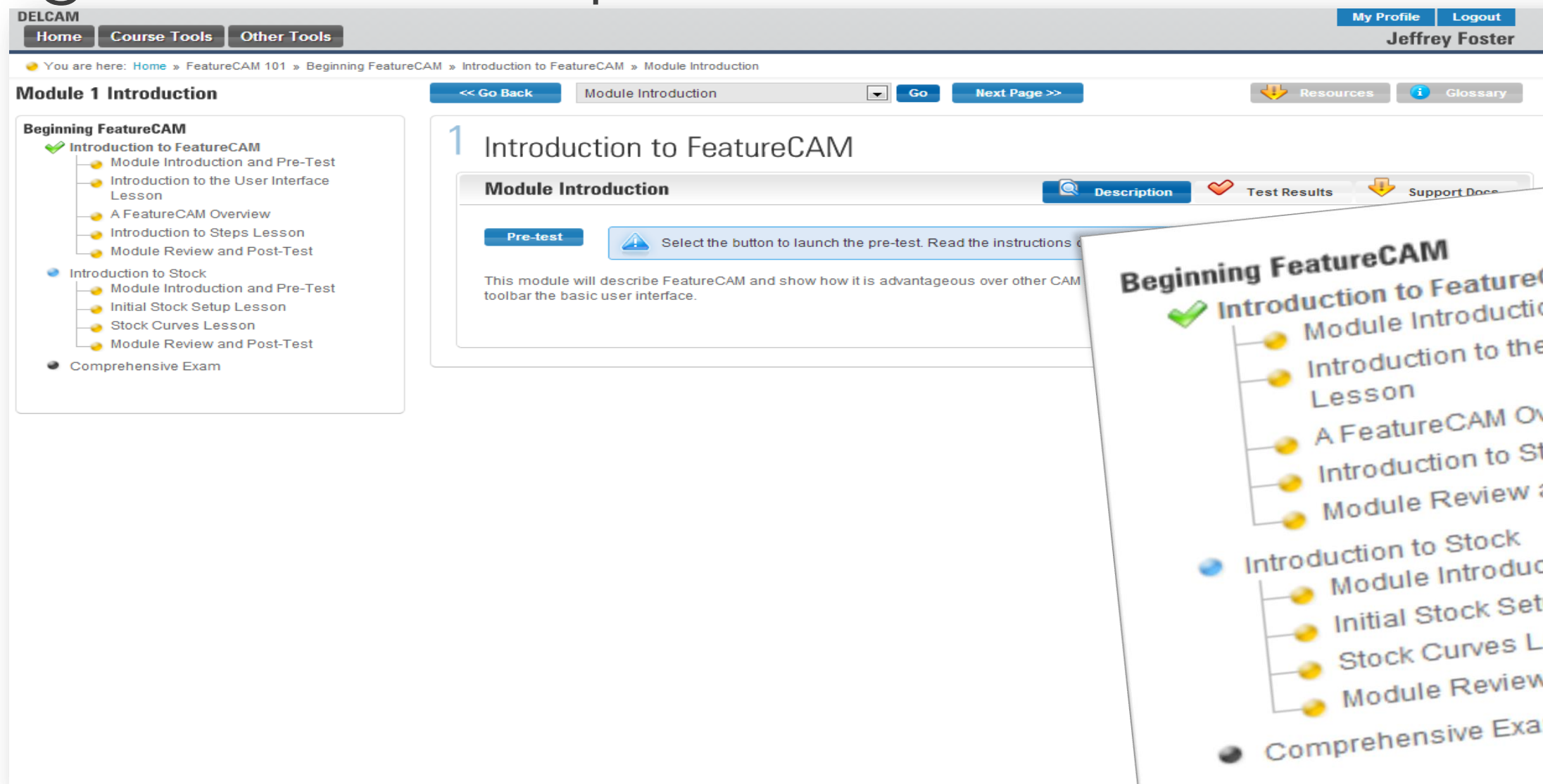
### Manage Classes

Show  entries Search all columns:

Class	Status	Leader	Actions
 <b>FeatureCAM 101</b> Introduction to 2.5D Milling	✓	Delcam Administrator	   
 <b>FeatureCAM 102</b> Introduction to Turning and Turn/Mill	✓	Delcam Administrator	   
 <b>FeatureCAM 201</b> Introduction to 3D Milling	✓	Delcam Administrator	   
 <b>Delcam for Solidworks 101</b> Introduction to 2.5D Milling for DFS	✓	Delcam Administrator	   
 <b>Delcam for SolidWorks 102</b> Introduction to Turn/Mill for DFS	✓	Delcam Administrator	   
 <b>Delcam for SolidWorks 201</b> Introduction to 3D Milling for DFS	✓	Delcam Administrator	   

⏪ ⏴ 1 ⏵ ⏩

Navigating the learning interface is made simple with navigation tabs, drop down menus, and a site tree



The screenshot displays the Delcam University learning interface. At the top, there are navigation tabs: Home, Course Tools, and Other Tools. A user profile for Jeffrey Foster is visible in the top right corner. The breadcrumb trail indicates the current location: Home » FeatureCAM 101 » Beginning FeatureCAM » Introduction to FeatureCAM » Module Introduction. The main content area is titled 'Module 1 Introduction' and includes a 'Pre-test' button and a description of the module. A sidebar on the left shows the 'Beginning FeatureCAM' site tree with a list of lessons and a comprehensive exam.

**Beginning FeatureCAM**

- ✓ Introduction to FeatureCAM
  - Module Introduction and Pre-Test
  - Introduction to the User Interface Lesson
  - A FeatureCAM Overview
  - Introduction to Steps Lesson
  - Module Review and Post-Test
- Introduction to Stock
  - Module Introduction and Pre-Test
  - Initial Stock Setup Lesson
  - Stock Curves Lesson
  - Module Review and Post-Test
- Comprehensive Exam

**Module Introduction**

**Pre-test**

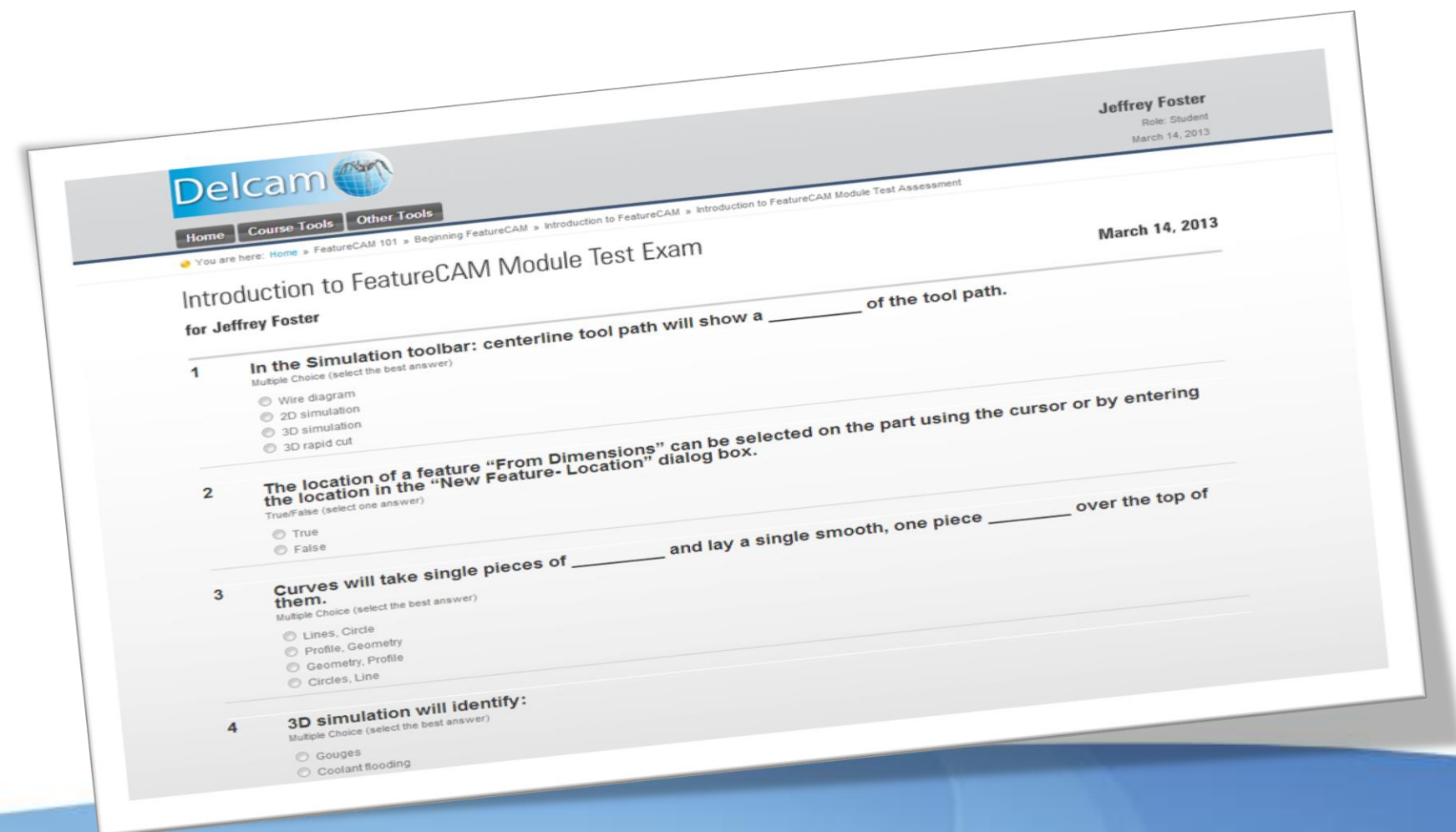
Select the button to launch the pre-test. Read the instructions.

This module will describe FeatureCAM and show how it is advantageous over other CAM toolbars the basic user interface.

- Beginning FeatureCAM**
- ✓ Introduction to FeatureCAM
    - Module Introduction and Pre-Test
    - Introduction to the User Interface Lesson
    - A FeatureCAM Overview
    - Introduction to Steps Lesson
    - Module Review and Post-Test
  - Introduction to Stock
    - Module Introduction and Pre-Test
    - Initial Stock Setup Lesson
    - Stock Curves Lesson
    - Module Review and Post-Test
  - Comprehensive Exam

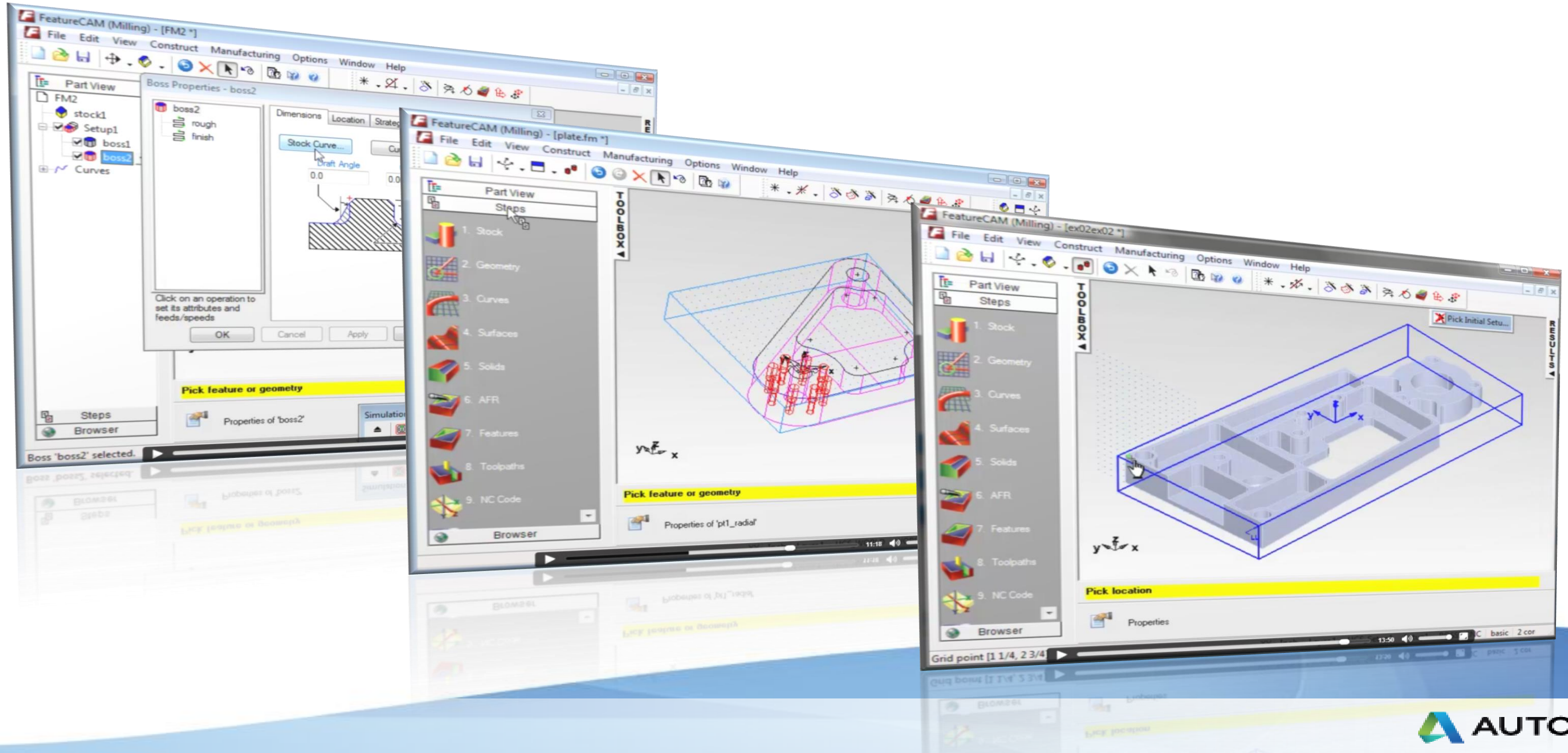
Each module begins with a Pre-Test & Post-Test

The tests highlight information needed to become a Delcam certified programmer





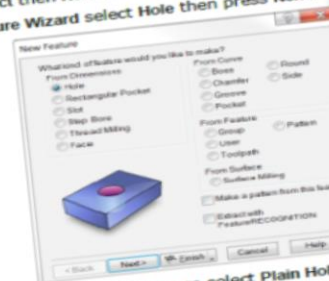
Each class consists of a series of instructional videos



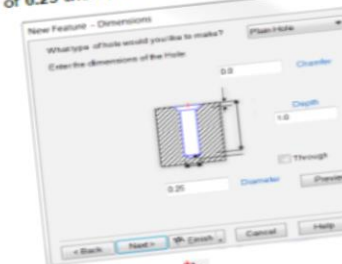
Downloadable exercises assist users with practical application of the material presented in the videos

### Feature From Dimensions Exercise #1

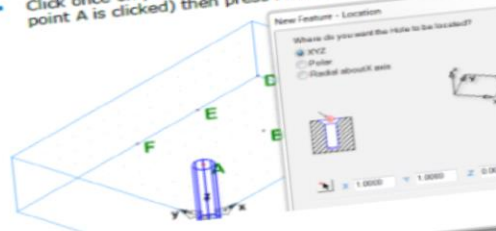
- Open Select holes.fm
- Click on Construct then New Feature.
- In the New Feature Wizard select Hole then press Next.



- On the new feature dimensions page select Plain Hole, and a Diameter of 0.25 then press Next.



- Click on the Pick location button.
- Click once on point A (values should be identical to those point A is clicked) then press Finish and OK.

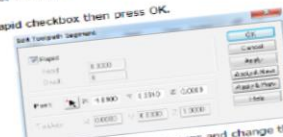


### Feature from Feature Exercise #2

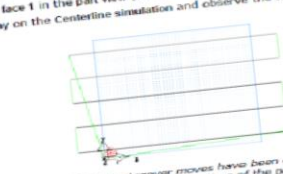
- Open ToolpathEdit.fm.
- Notice there is only a single face feature in this example located at Z=0
- Run a Centerline simulation of the current toolpath.
- On this facing toolpath there are four undesirable areas where we would like to change the toolpath. For the toolpath representation there are both feed moves and rapid moves. Black toolpath segments represent the feed moves while the green segments represent rapid moves. Currently circled in red are feed moves for the stepover moves. Since the stepover of the facing tool is off the stock it is safe for us to change these to rapid moves.
- Press Edit on the simulation toolbar
- Open the New Feature Wizard and select Toolpath in the From Feature section then press Next.
- Press the Operation radio button select face1, finish then press Next.



- Select the first Y feed move from the list, then press the Edit segment button.
- Check the Rapid checkbox then press OK.



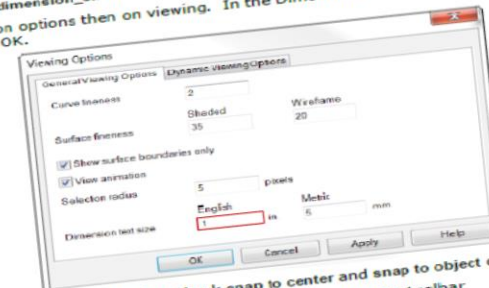
- Locate the remaining Y stepover feed moves and change them to Rapid also then press Finish.
- Observe the features in the part view. Now there should be a Facing feature and a toolpath feature. The toolpath feature is simply a copy of the original features toolpaths with the edited move.
- Uncheck face 1 in the part view (so there are not two facing operations)
- Press Play on the Centerline simulation and observe the toolpath.



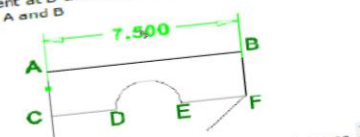
Now notice that the stepover moves have been converted to rapid moves that will reduce the cutting time of the part.

### Dimensioning Constructor Exercise

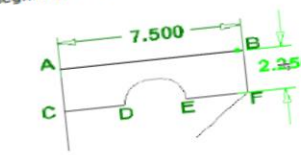
- Open dimension\_ex.fm
- Click on options then on viewing. In the Dimension text size enter 1 then press OK.



- On the snapping toolbar check snap to center and snap to object only.
- From the Dimensioning flyout menu on the geometry toolbar select Horizontal Distance.
- Click once on the vertical line segment, close to A, then click again on the vertical line segment at B then click once again above the horizontal line segment between A and B.

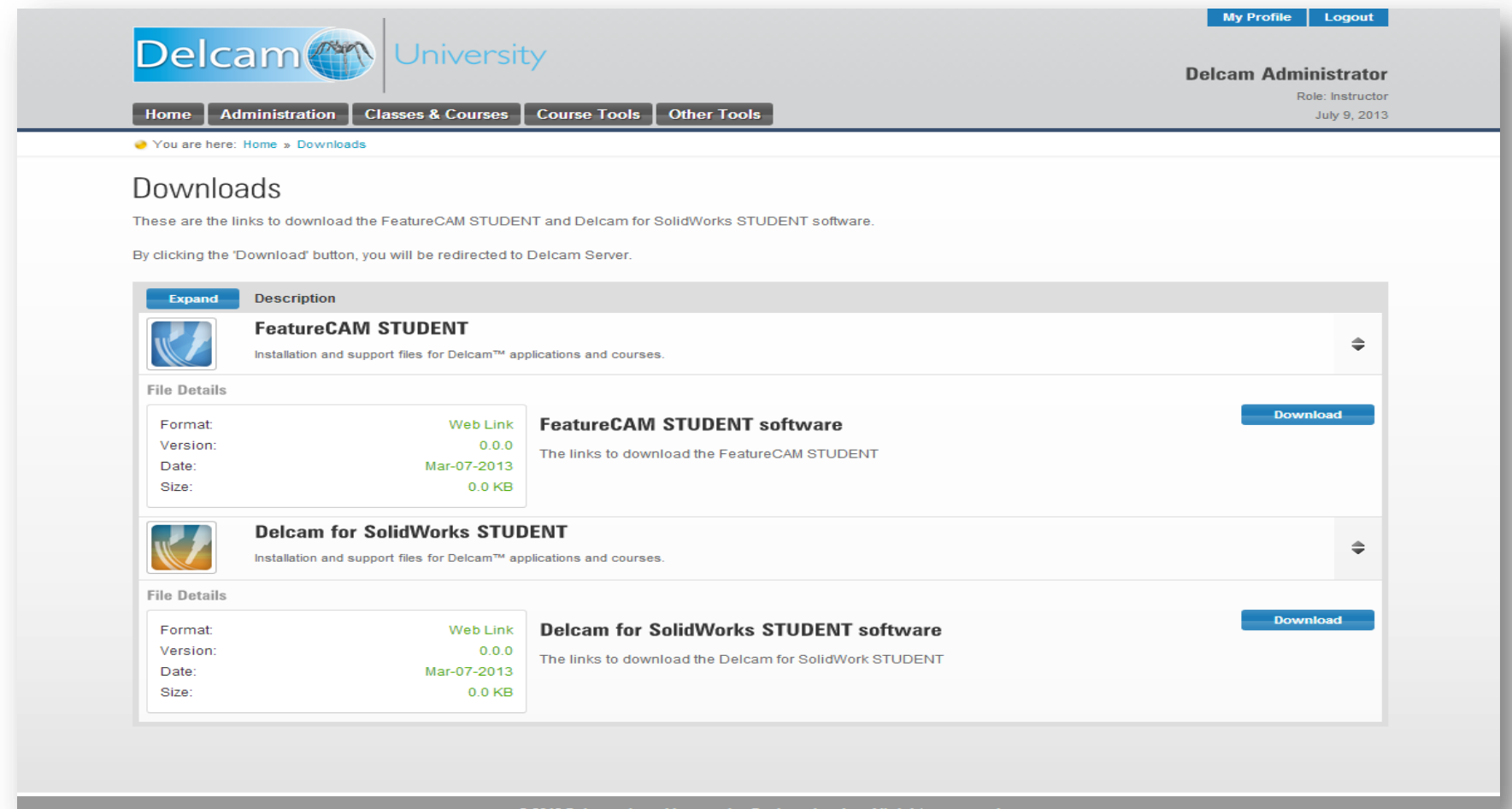


- From the dimensioning flyout menu click on Vertical distance.
- Click once on the horizontal line segment between A and B, click once on the horizontal line segment E - F then click again to the right of the vertical line segment B-F.





- Able to download student versions of FeatureCAM and DFS
- Uses dongless security
- Does not post
- Students can save files!



The screenshot shows the Delcam University website interface. At the top, there is a navigation bar with the Delcam University logo and links for 'My Profile' and 'Logout'. Below this, a secondary navigation bar contains links for 'Home', 'Administration', 'Classes & Courses', 'Course Tools', and 'Other Tools'. The main content area is titled 'Downloads' and includes a brief explanation of the links provided. It lists two software packages for download: 'FeatureCAM STUDENT' and 'Delcam for SolidWorks STUDENT'. Each package entry includes a description, file details (Format, Version, Date, Size), a 'Web Link' to the download, and a 'Download' button. The footer of the page contains a copyright notice for 2013 Delcam plc and Immersive Engineering, Inc.

**Delcam University** [My Profile](#) [Logout](#)



[Home](#) [Administration](#) [Classes & Courses](#) [Course Tools](#) [Other Tools](#)

You are here: [Home](#) » [Downloads](#)

### Downloads

These are the links to download the FeatureCAM STUDENT and Delcam for SolidWorks STUDENT software.

By clicking the 'Download' button, you will be redirected to Delcam Server.

Expand	Description
	<b>FeatureCAM STUDENT</b> Installation and support files for Delcam™ applications and courses.
<b>File Details</b>	
Format:	<a href="#">Web Link</a>
Version:	0.0.0
Date:	Mar-07-2013
Size:	0.0 KB
<b>FeatureCAM STUDENT software</b> <a href="#">Download</a>	
The links to download the FeatureCAM STUDENT	
	<b>Delcam for SolidWorks STUDENT</b> Installation and support files for Delcam™ applications and courses.
<b>File Details</b>	
Format:	<a href="#">Web Link</a>
Version:	0.0.0
Date:	Mar-07-2013
Size:	0.0 KB
<b>Delcam for SolidWorks STUDENT software</b> <a href="#">Download</a>	
The links to download the Delcam for SolidWork STUDENT	

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Certificates are generated after satisfactory completion of each class







**Thank you**

# Free Software for All



## Instructor Student Classroom

# CAM Market – by Seat Count

Table 22: 2013 Ranking of NC Providers by Industrial Seats Shipped

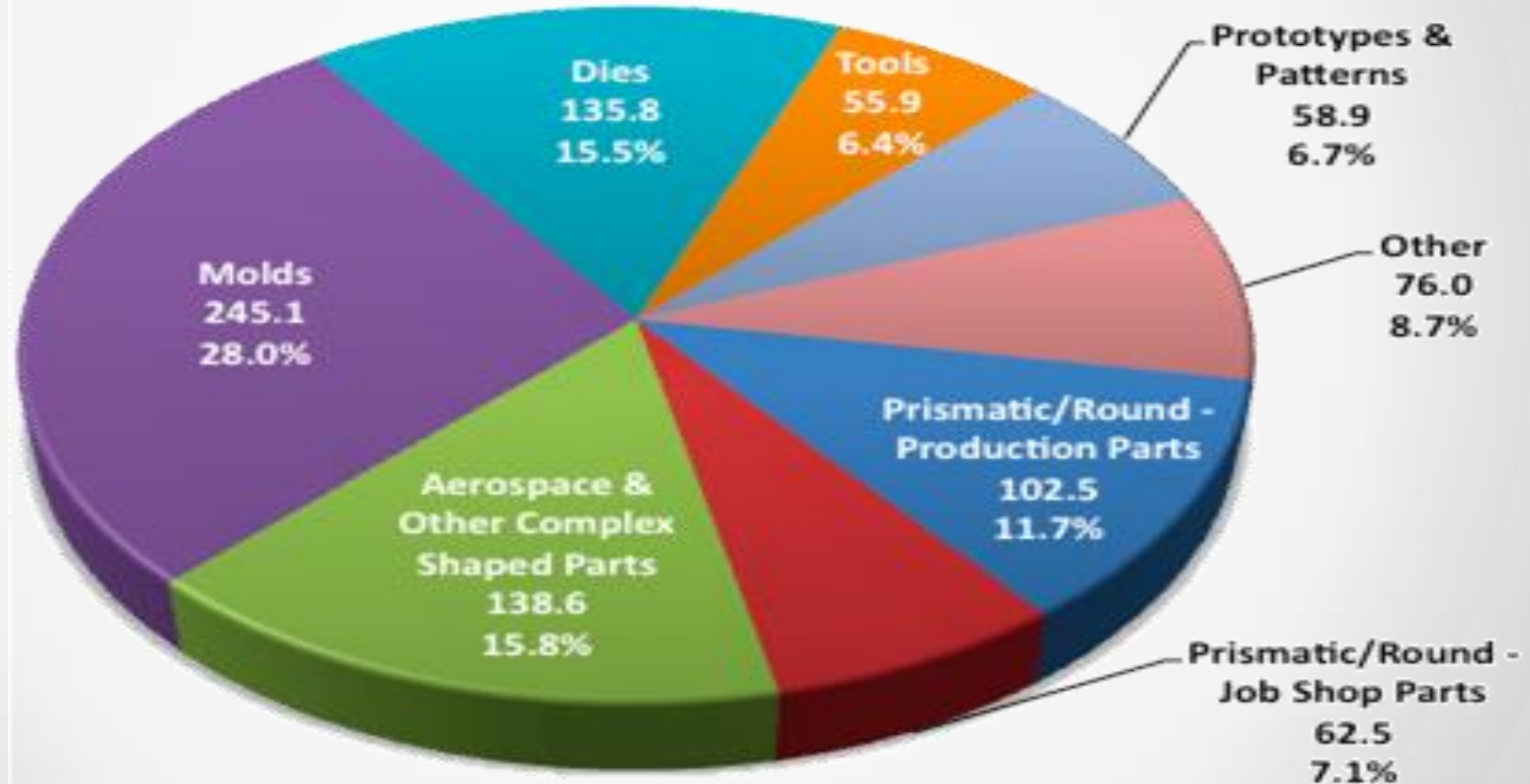
2013 Ranking	Company	Seats Shipped 2011	Seats Shipped 2012	Seats Shipped 2013
1	<b>AUTODESK CAM</b>	ND	ND	16,300
2	Vero Software	10,520	11,500	14,850
3	Delcam	7,140	7,100	8,950
4	Siemens PLM Software	4,504	4,954	5,152
5	CNC Software	4,260	4,624	4,733
6	DP Technology	2,750	2,750	2,910
7	Dassault Systèmes	3,500	2,700	2,780
8	Cimatron	2,410	2,490	2,590
9	PTC	2,920	2,580	2,585
10	Missler Software	1,800	1,800	1,900
11	ICAM	1,660	1,760	1,870
12	SolidCAM	1,650	1,790	1,850
13	Geometric Technologies	1,400	1,711	1,724
14	NTT Data Engineering Systems	1,840	1,590	1,630
15	BobCAD-CAM	1,310	1,385	1,450

Seat counts presented are CIMdata estimates from the 2014 CIMdata NC Market Analysis Report – June 2014

# CAM TAM – Industry and Product

We can address 90%+ of the Industrial market TODAY

And 99% of the Educational market



CIMdata 2013 Market Analysis Report – July 2013



# CAM Educational Presentation

- Free to Education, makers, enthusiast startups
- Network or Standalone licences

# Where does CAM fit?

## Secondary

CAD

Engineering

Manufacturing

Mechanical

Pre Engineering

Wood Tech

Architectural/BIM

PLTW

Metal Tech

STEM Courses

Machining

Clubs-First and Vex  
Robotics.

SkillsUSA, TSA, Formula SAE

# Where does CAM Fit? Post Secondary

Design

Engineering

Manufacturing

Industrial Design

Mechanical CAD (ME 101)

Manufacturing Engr.

Consumer Product Design

Mechanical Engr. Tech

Industrial Engr.

Automotive Styling

Mechatronics Engr.

Precision Machining

Mechanical Engr.

Aerospace Engineering

# Maker Movement Processes & Limits

- **3D Printing**
  - Plastic, Long processing time
- **Laser**
  - 2D Flatwork, Fumes, \$\$\$
- **CNC**
  - Fast
  - 2D and 3D
  - Multiple materials-metal, wood, plastic
  - Available



## STAND ALONE CAM



surfcam  
edgecam



GilbsCAM



## INTEGRATED CAM

HSMWORKS

SIEMENS NX

3D DELMIA

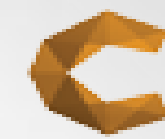


## "BOLT-ON" CAM

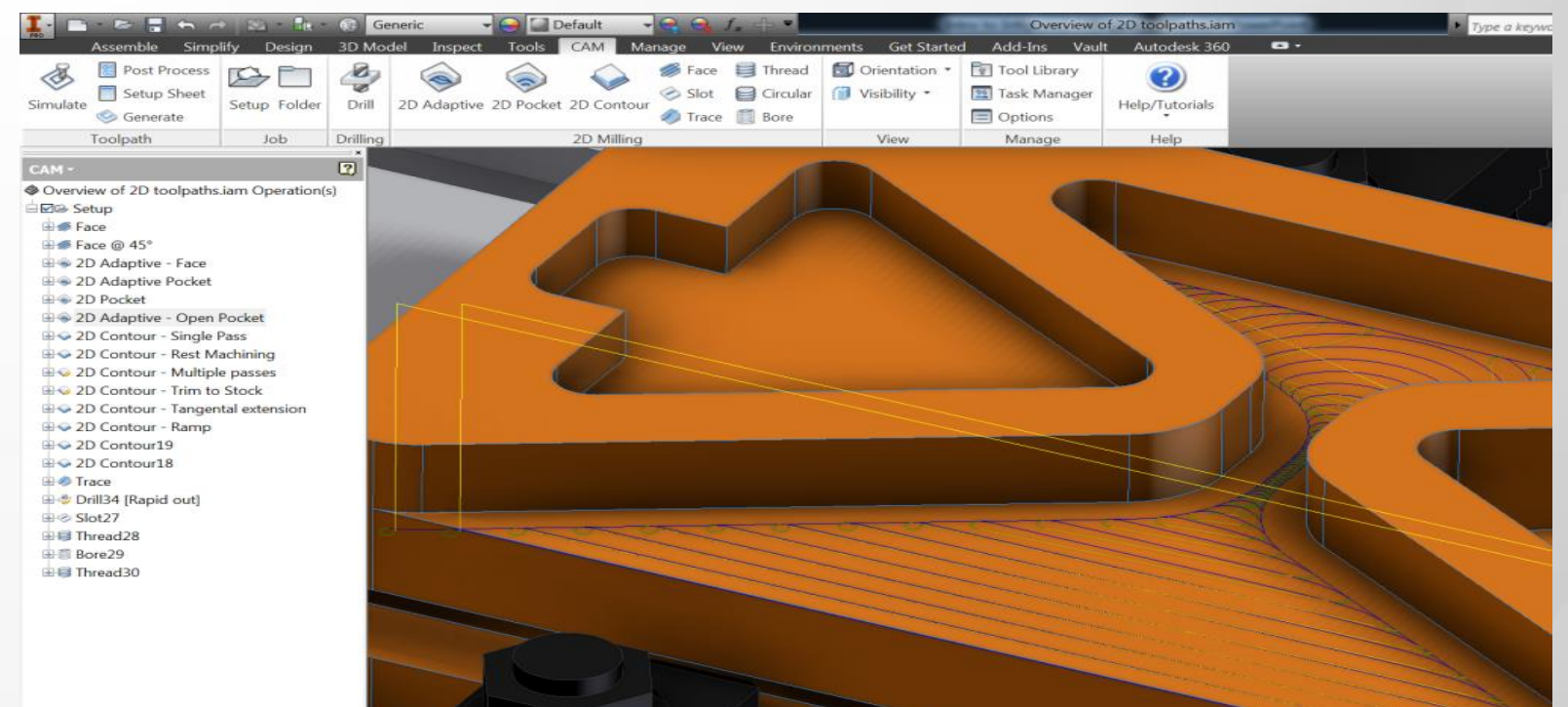
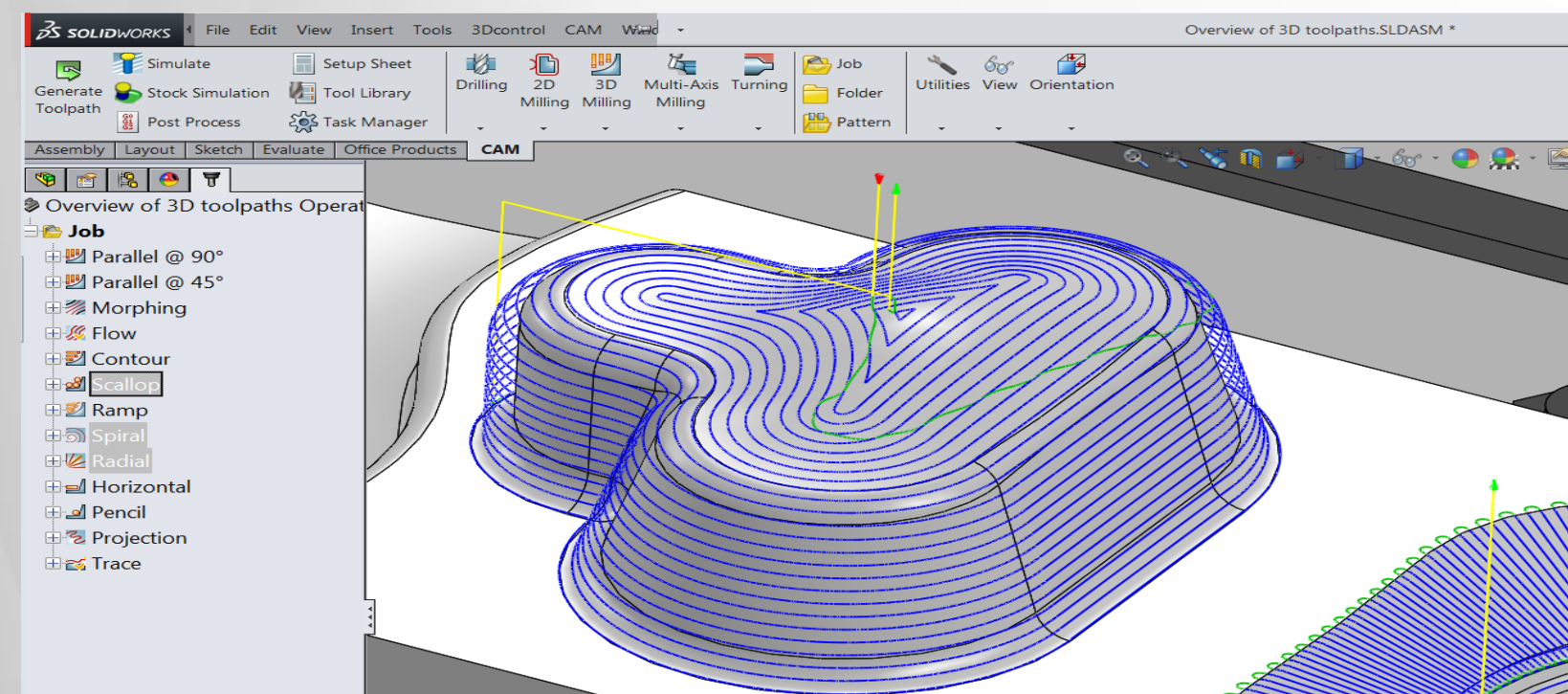
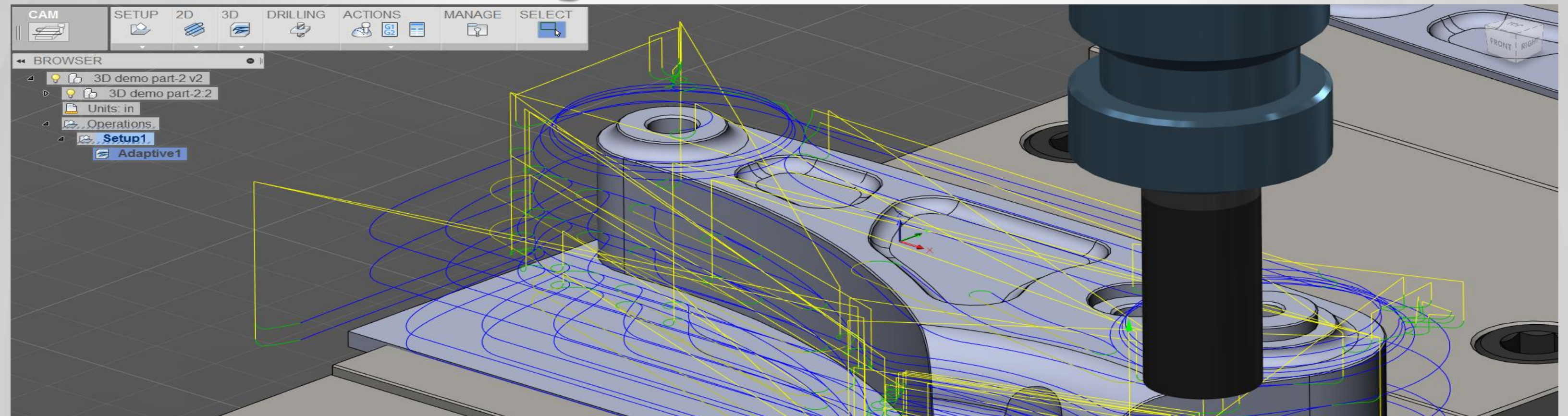




# Next Generation Integrated CAM



AUTODESK® CAM



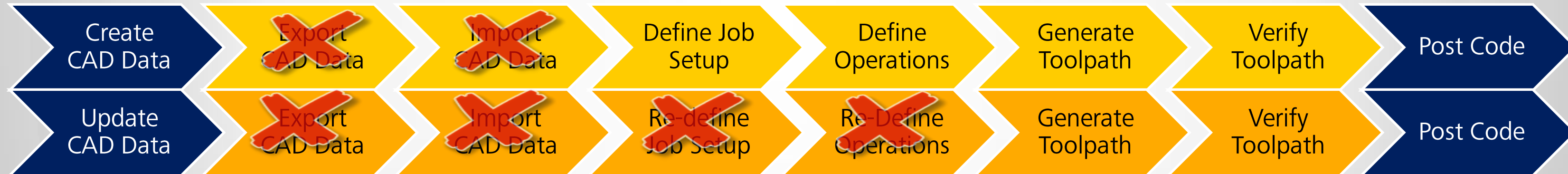


# Why Autodesk Integrated CAM is Better?

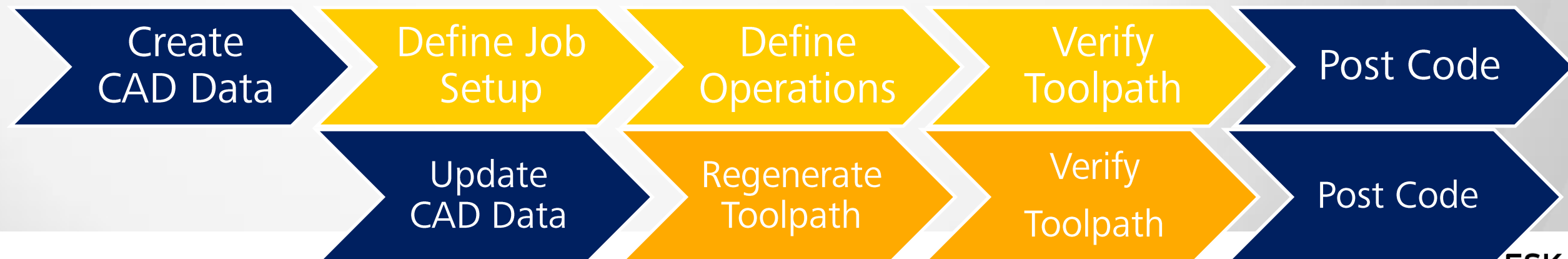
- Includes CAD
- Cuts CAM learning time by 90%
- Shortens setup time by 75%
- Simplified processes

• **Free to Education**

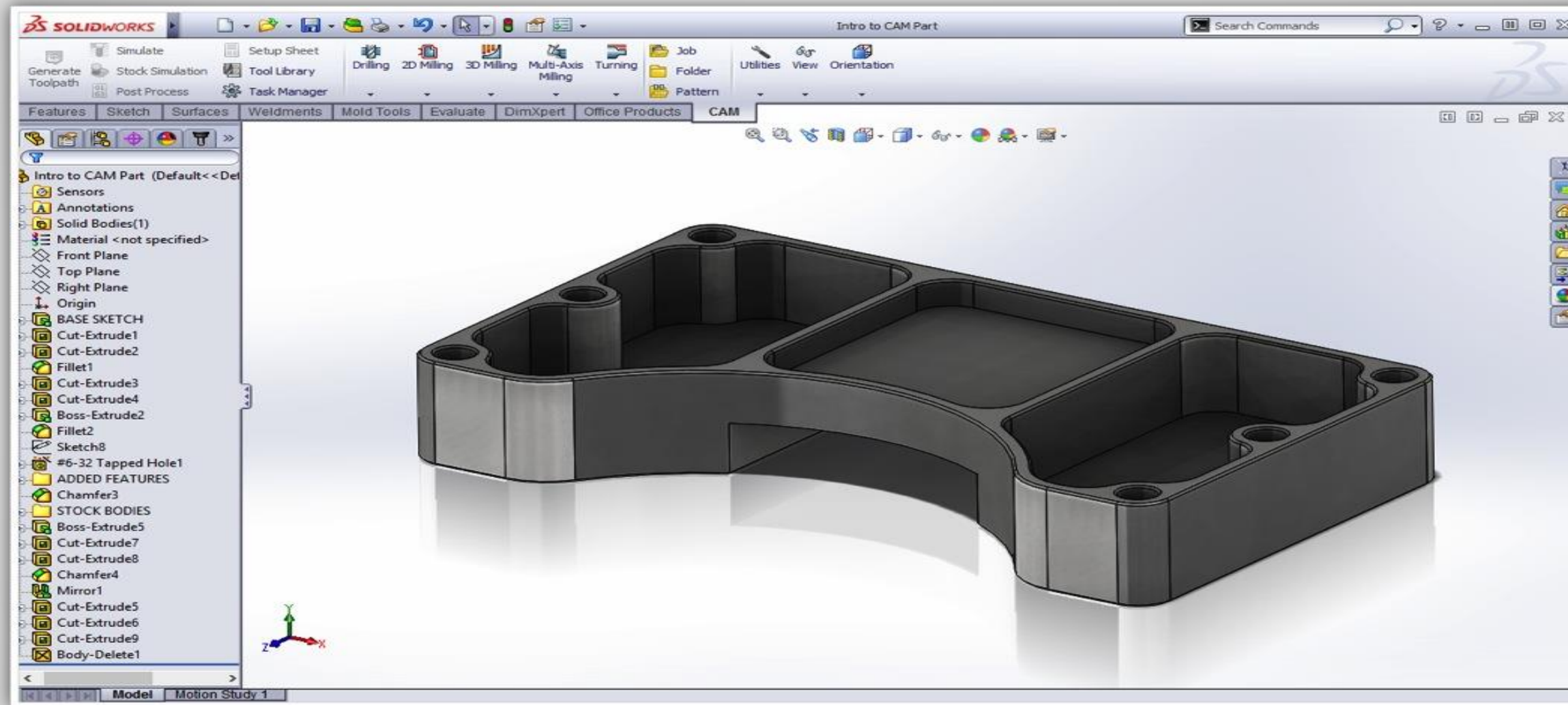
## Standalone CAM



## Autodesk Integrated CAM



# CAM – How it really works



Create/Open  
CAD Data

Define Job  
Setup

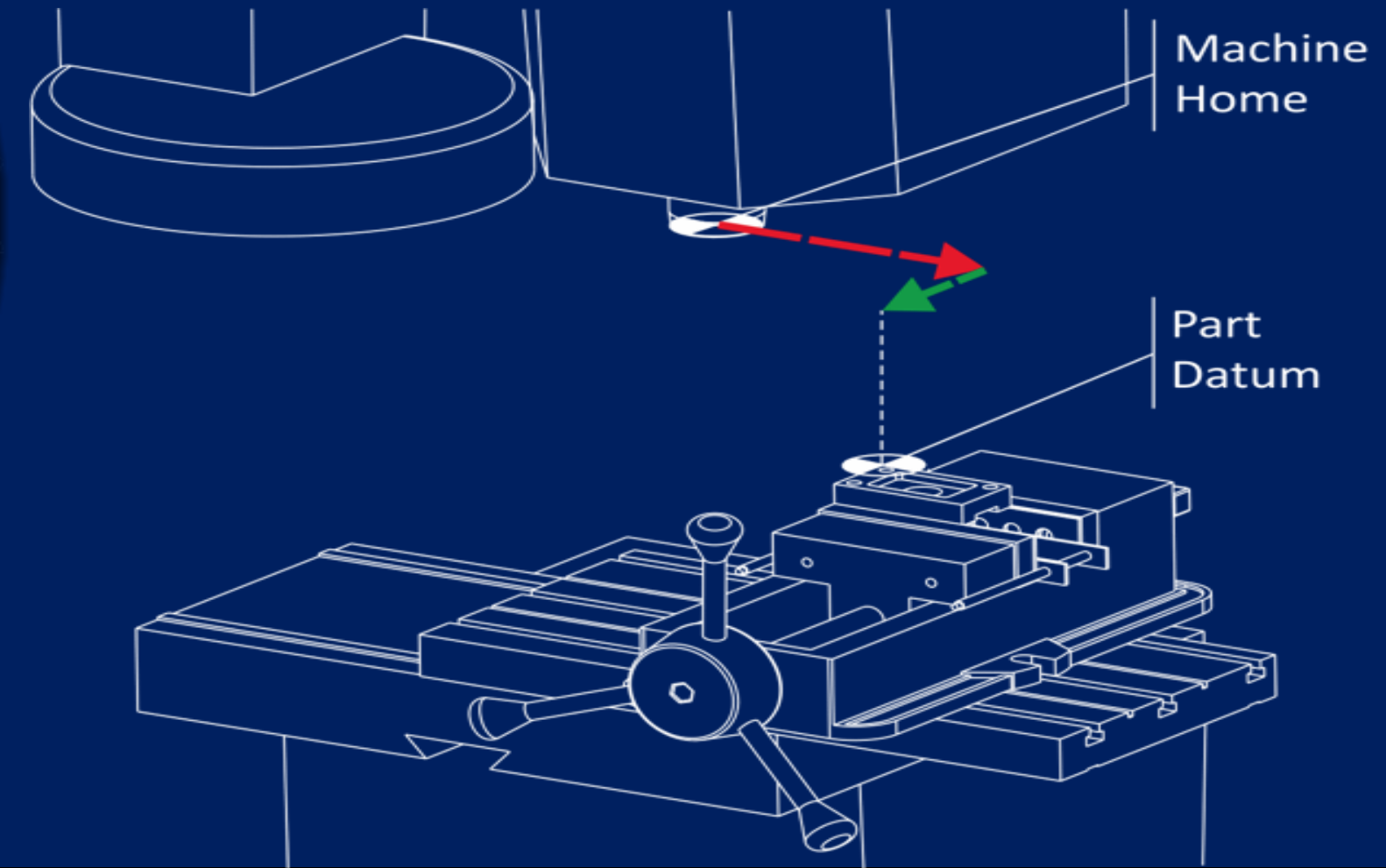
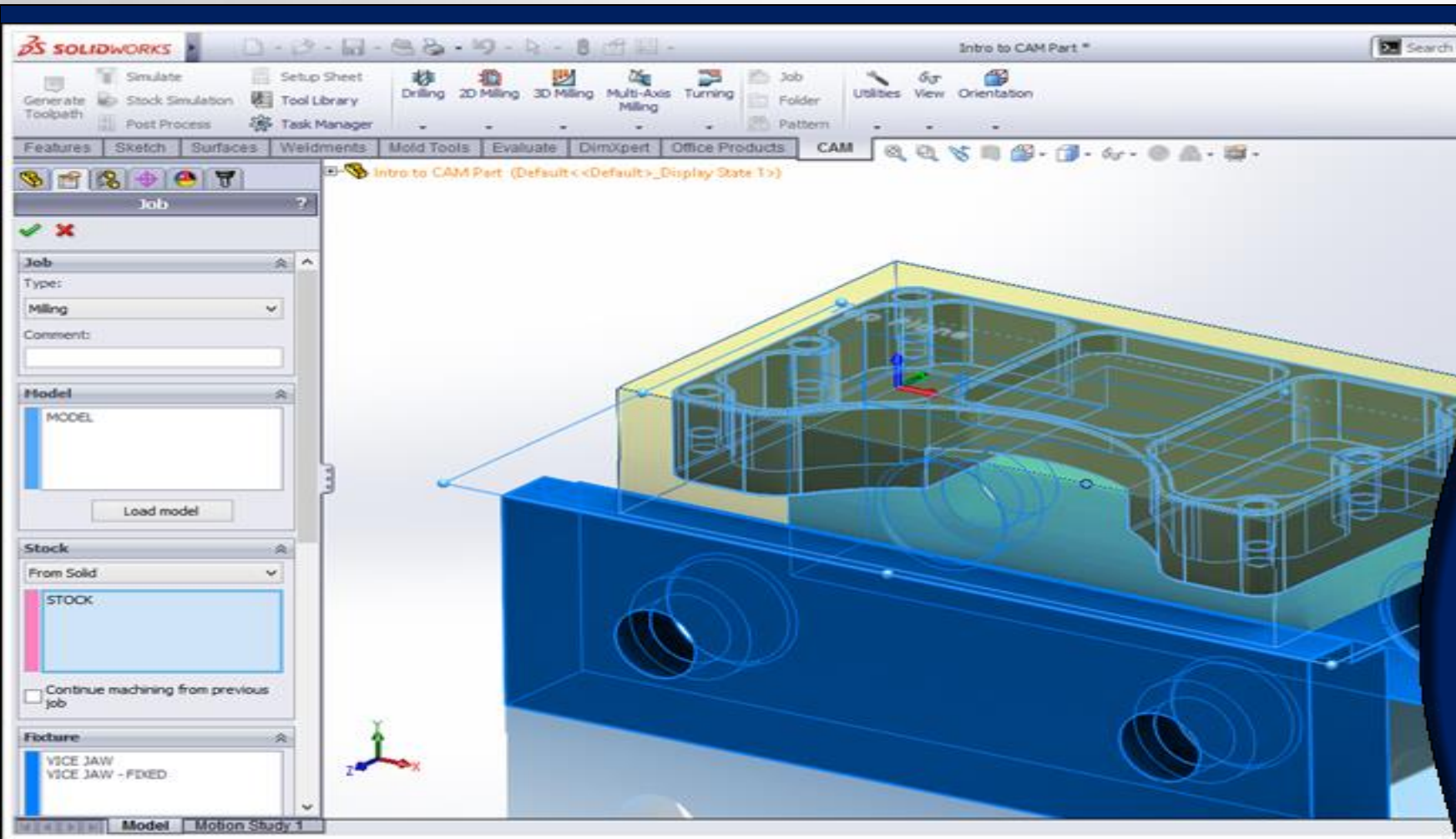
Define  
Operations

Simulate  
Toolpath

Post Code



# CAM – Define job setup



Create/Open  
CAD Data

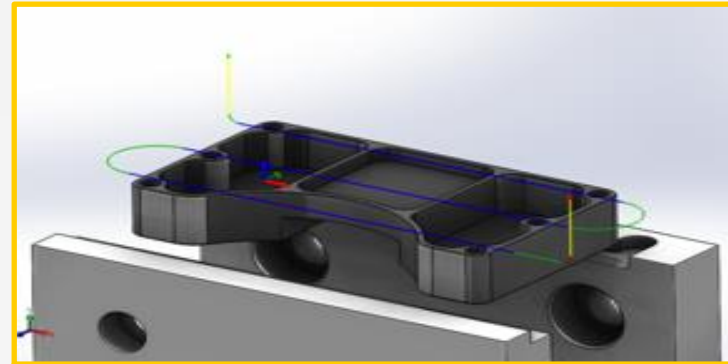
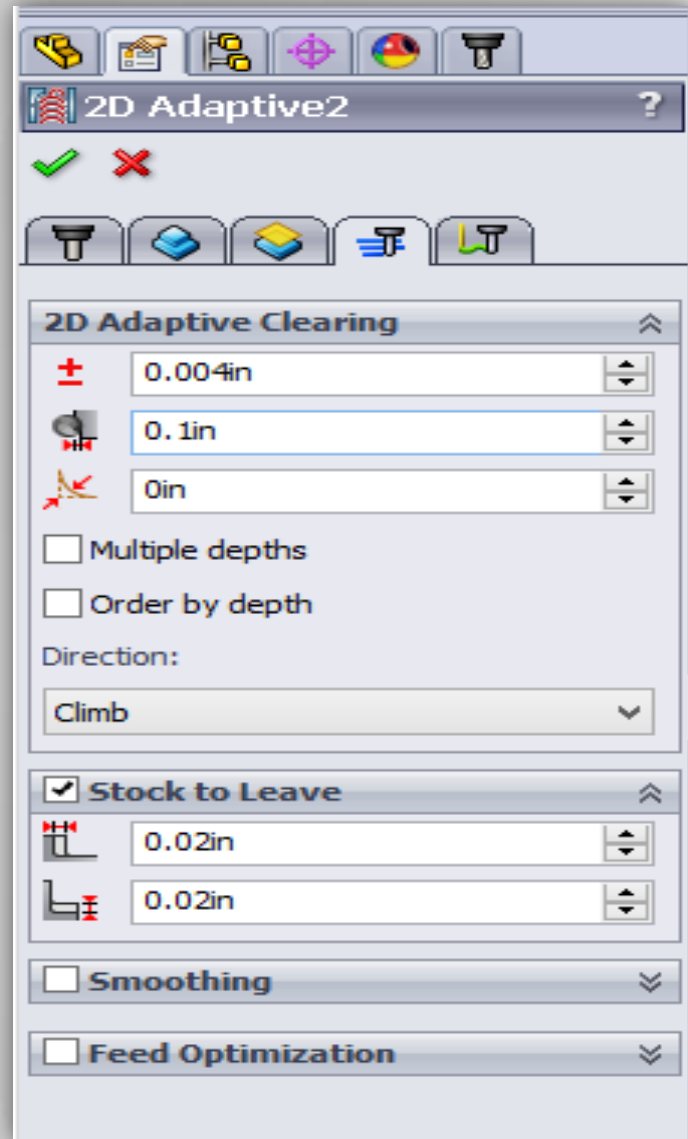
**Define Job  
Setup**

Define  
Operations

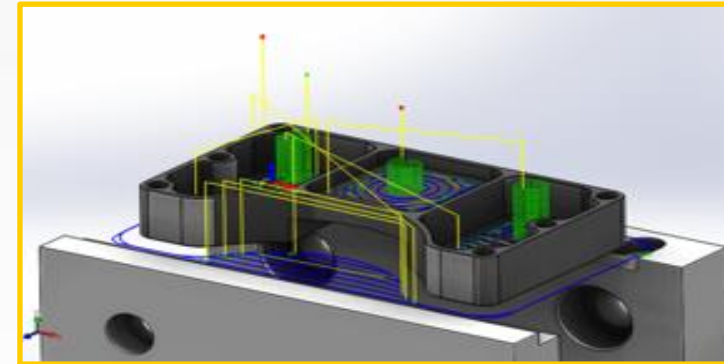
Simulate  
Toolpath

Post Code

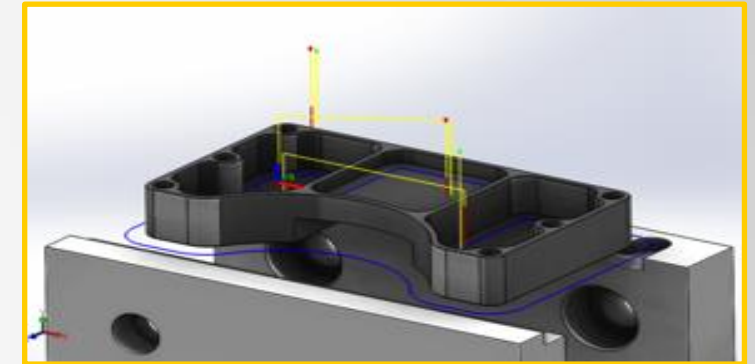
# CAM –Apply toolpath to cut features



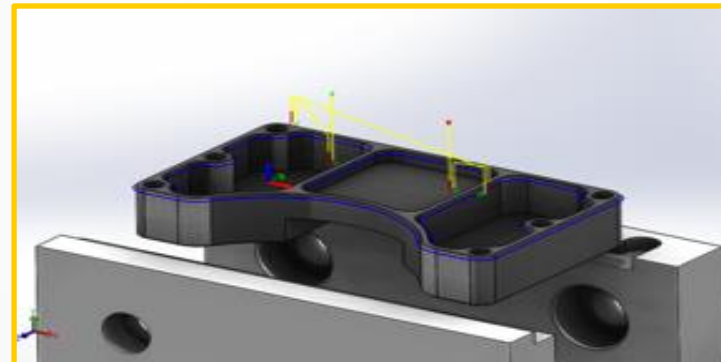
Facing



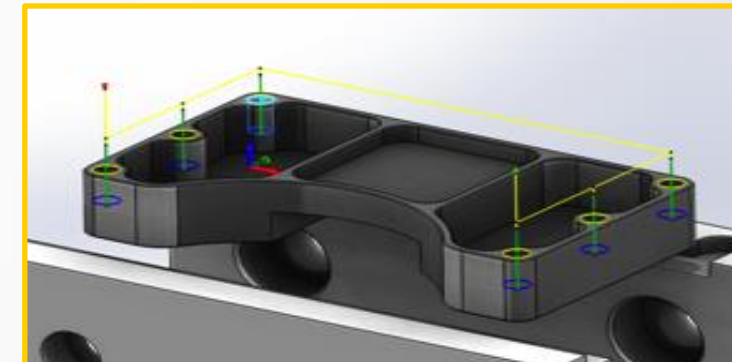
Roughing



Contouring



Chamfering



Drilling

Create/Open  
CAD Data

Define Job  
Setup

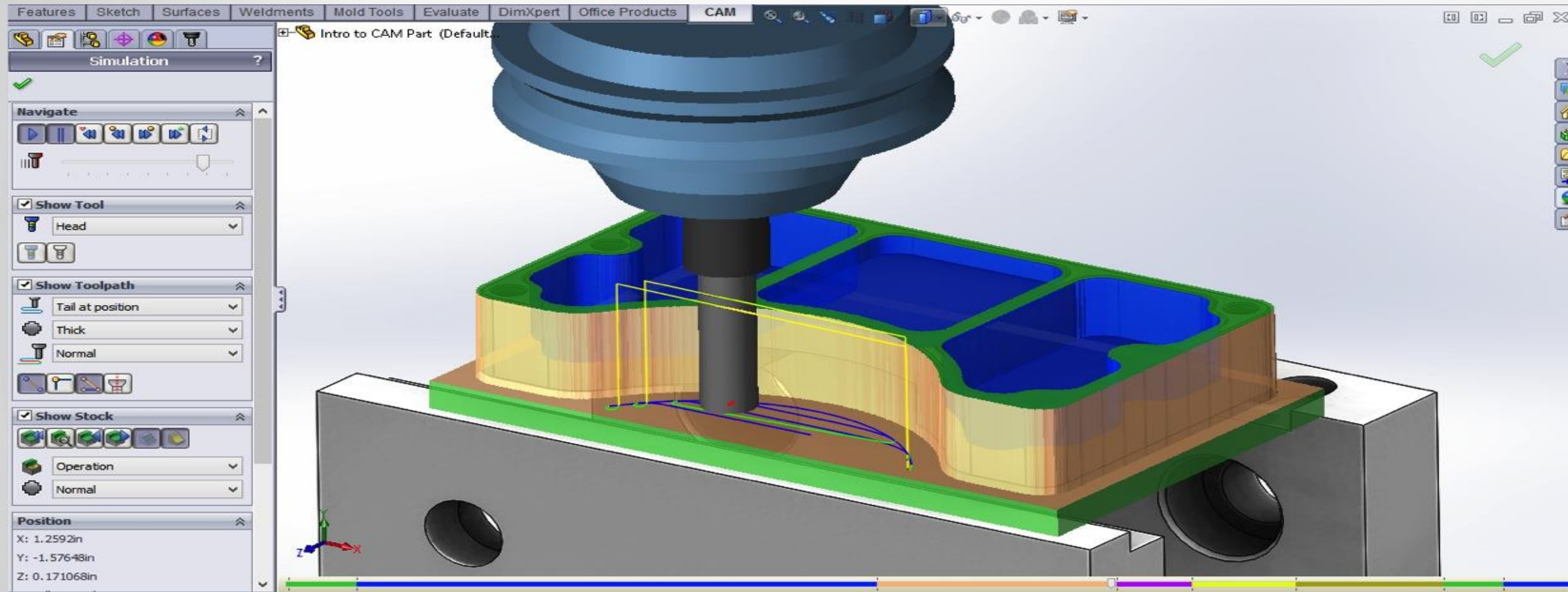
Define  
Operations

Simulate  
Toolpath

Post Code



# CAM – Verify toolpath with simulation



Create/Open  
CAD Data

Define Job  
Setup

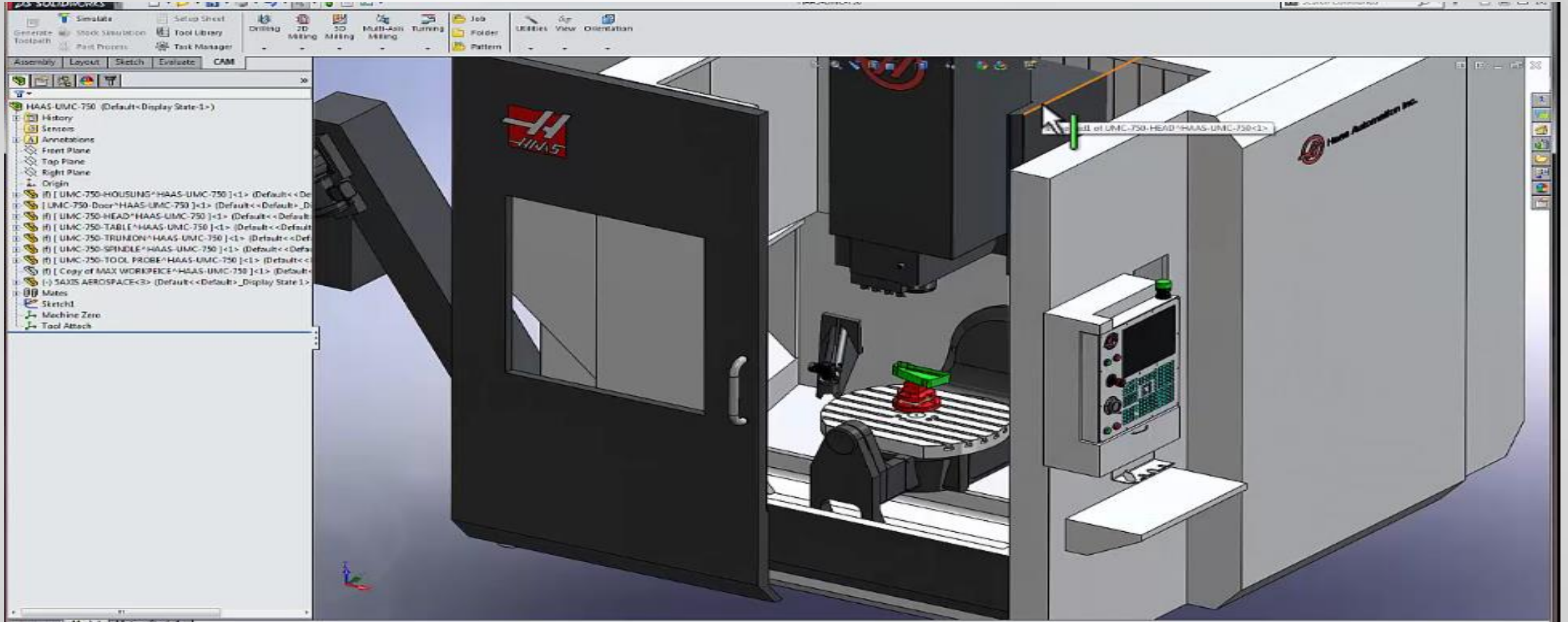
Define  
Operations

**Simulate  
Toolpath**

Post Code



# CAM – Machine Simulation



Create/Open  
CAD Data

Define Job  
Setup

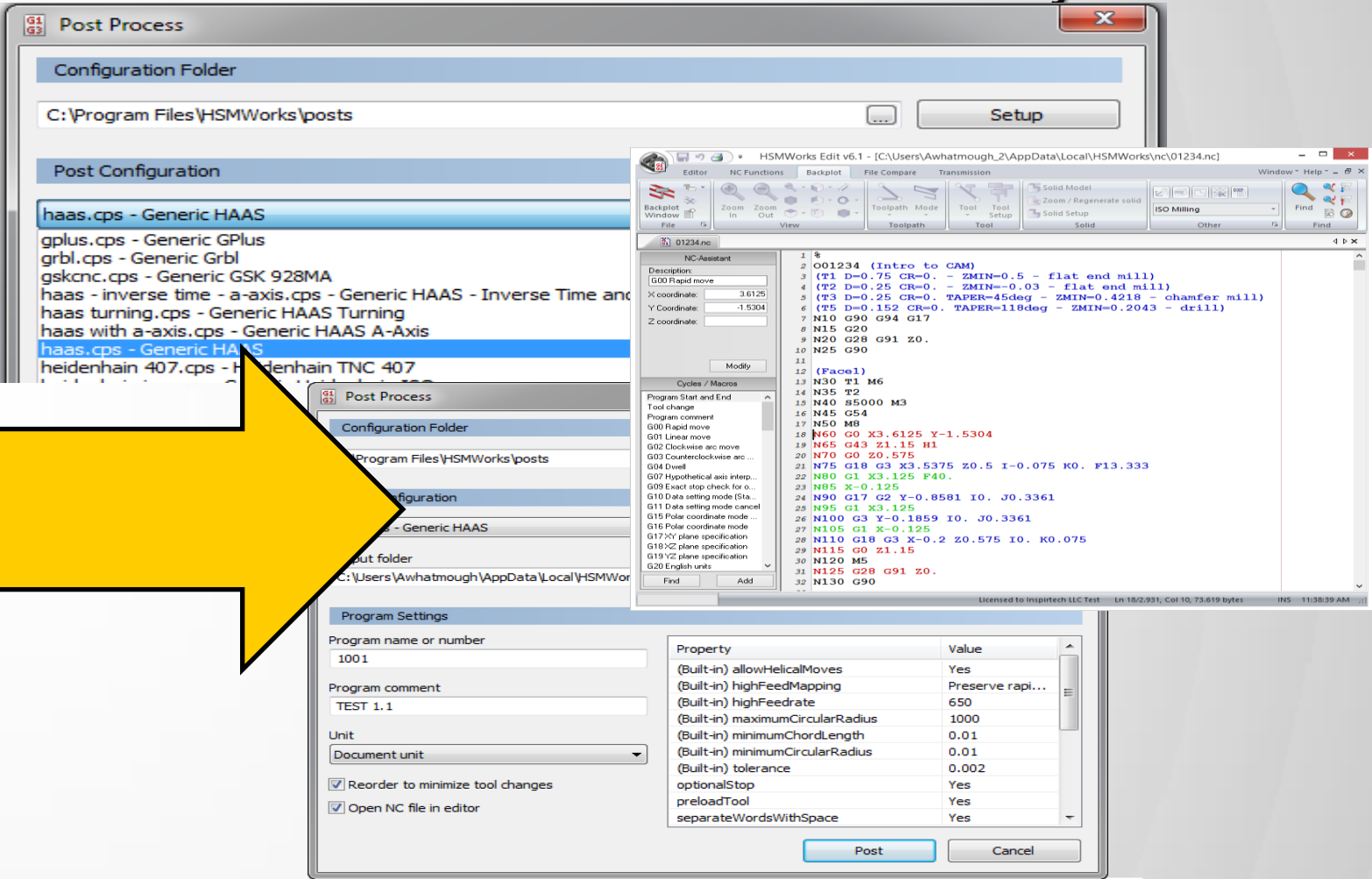
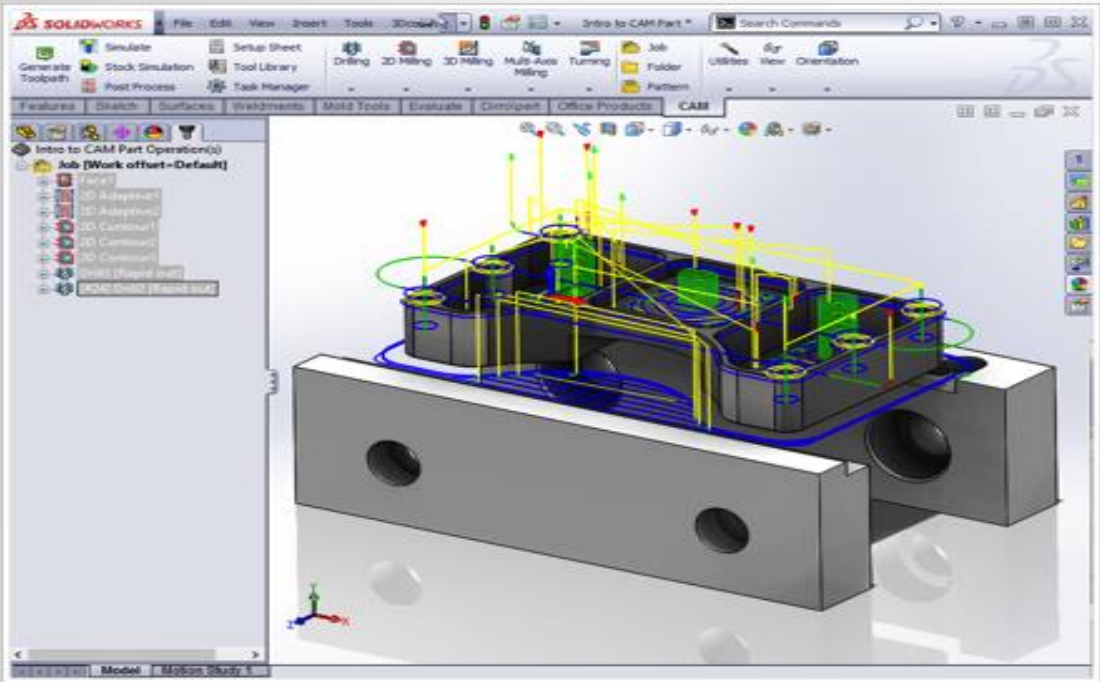
Define  
Operations

**Simulate  
Toolpath**

Post Code

# CAM – Generate NC-code Certified Post Processors

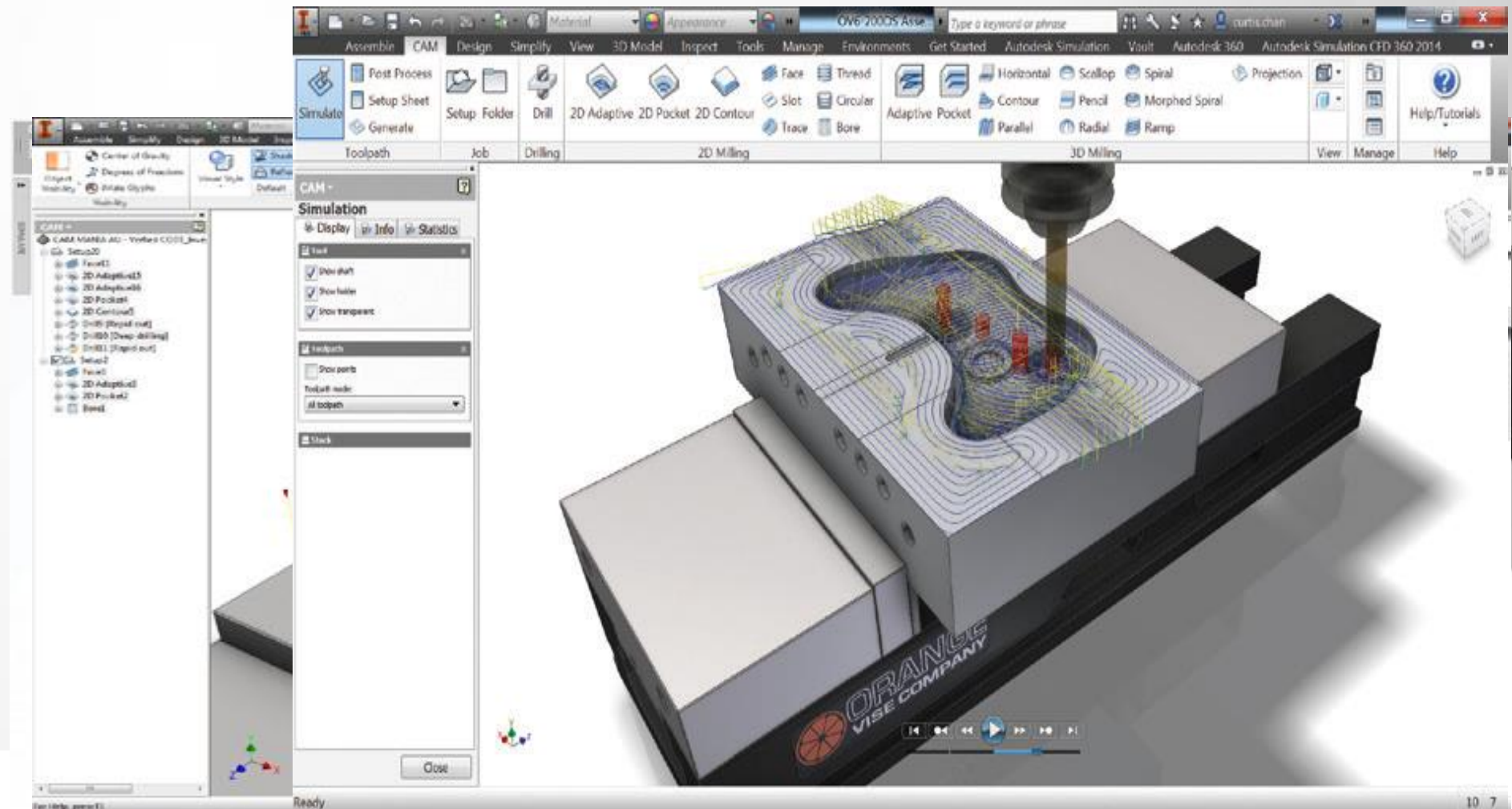
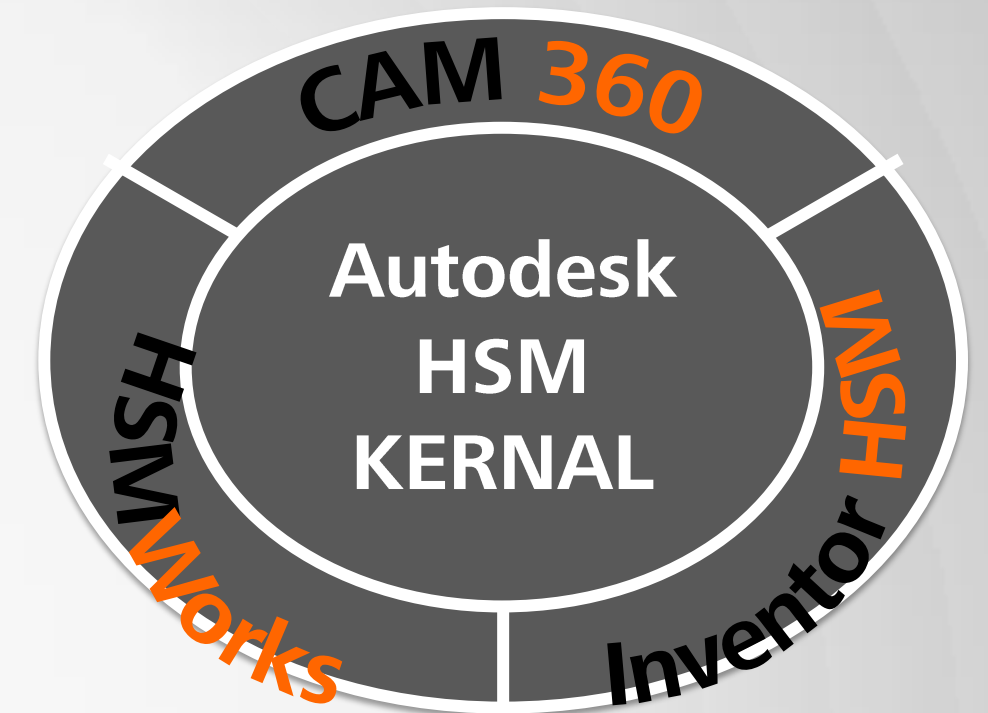
Post Processing converts native toolpath data into “G-CODE” formatted correctly for over 80+ machines.





# HSM CAM Benefits

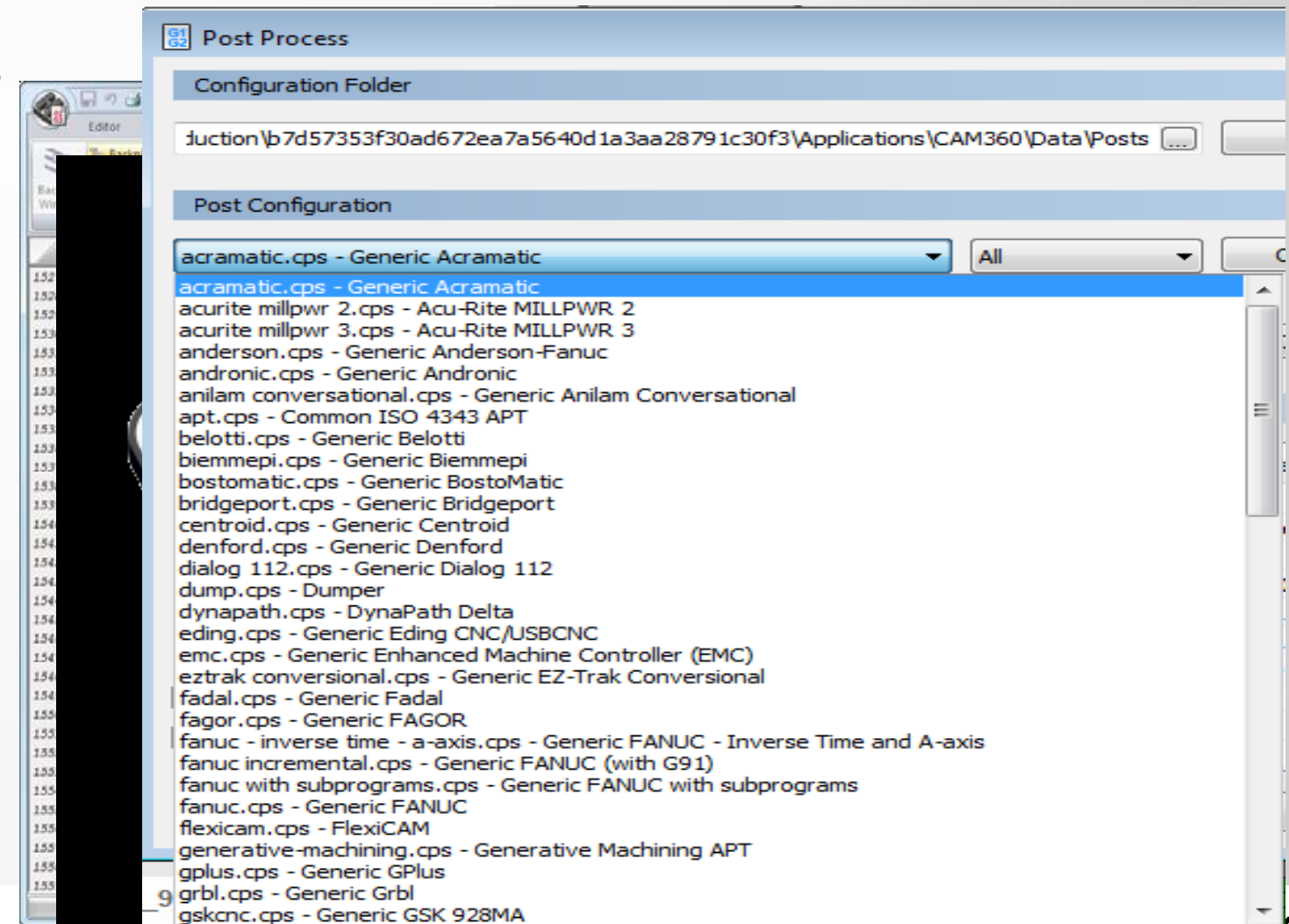
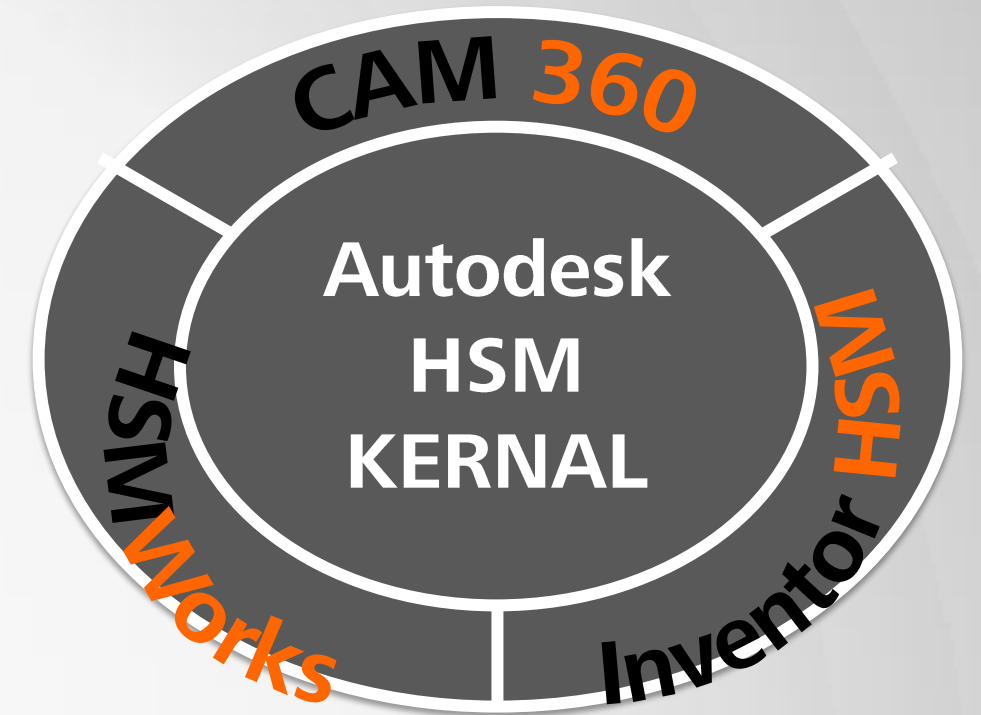
- Learn one learn all
  - Fusion, Inventor, SolidWorks
  -
- Adaptive Clearing
- Full model associativity
  - Advanced strategies
  - Simulation





# HSM CAM Benefits

- Powerful NC-code editor
  - Plus reverse posting to check hand code
- Library of Post Processors
  - Ready to go with your CNC
- 64 bit core
  - Fast, fast, fast!!!

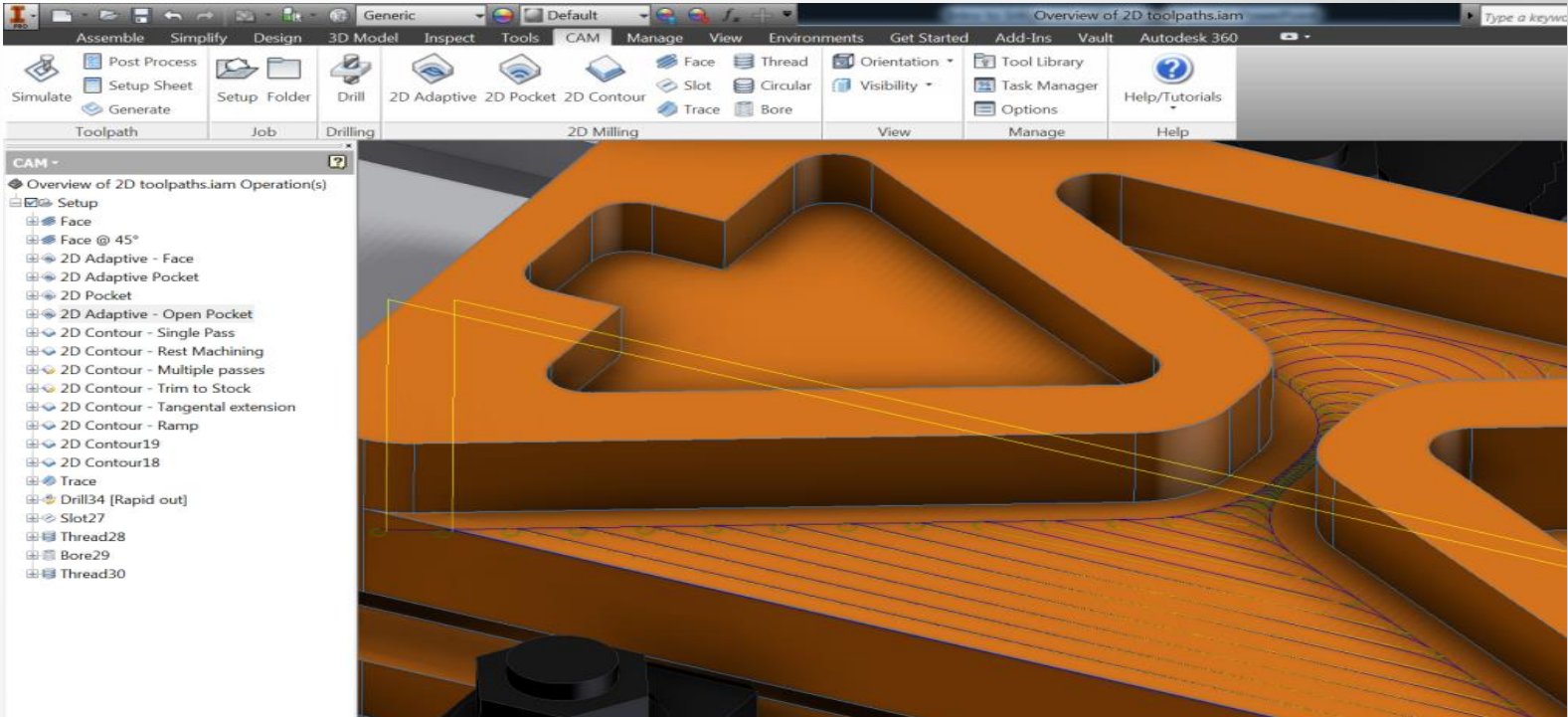
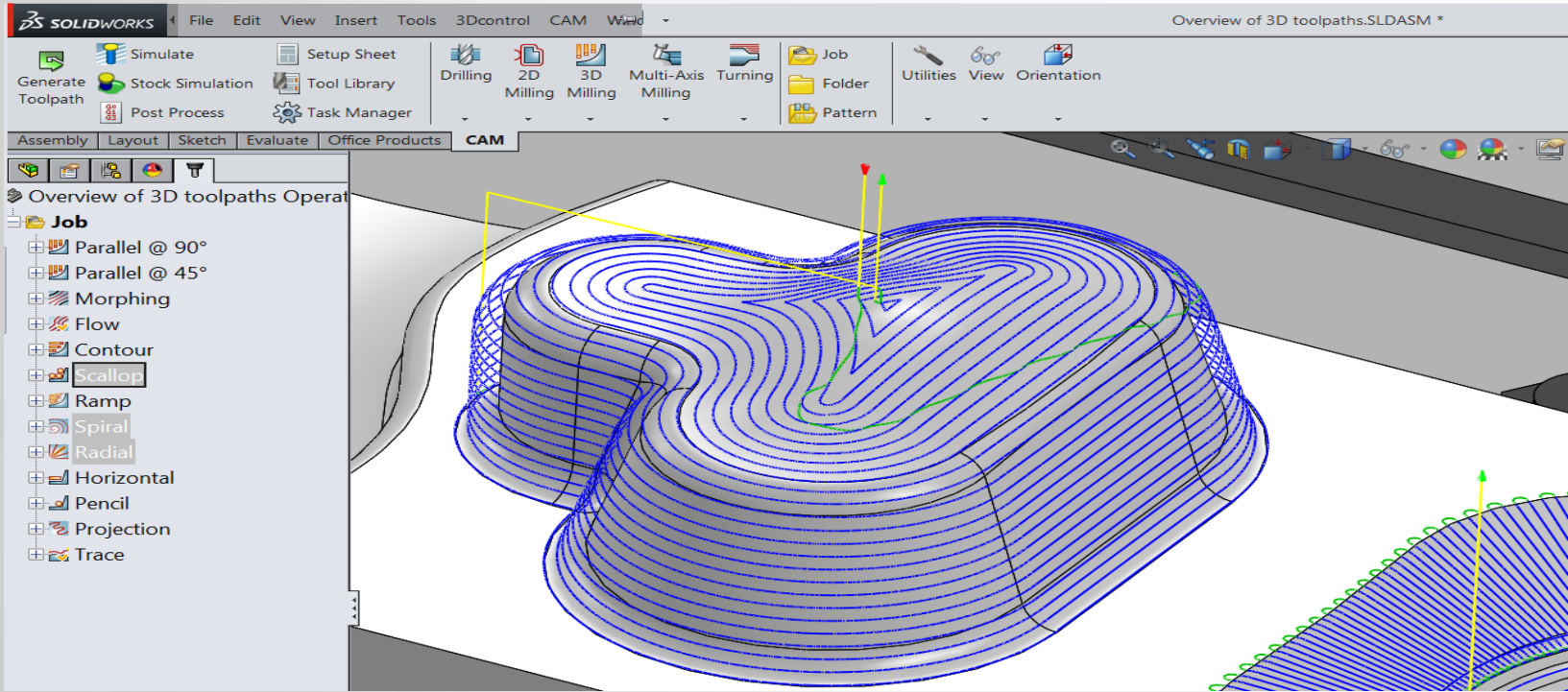
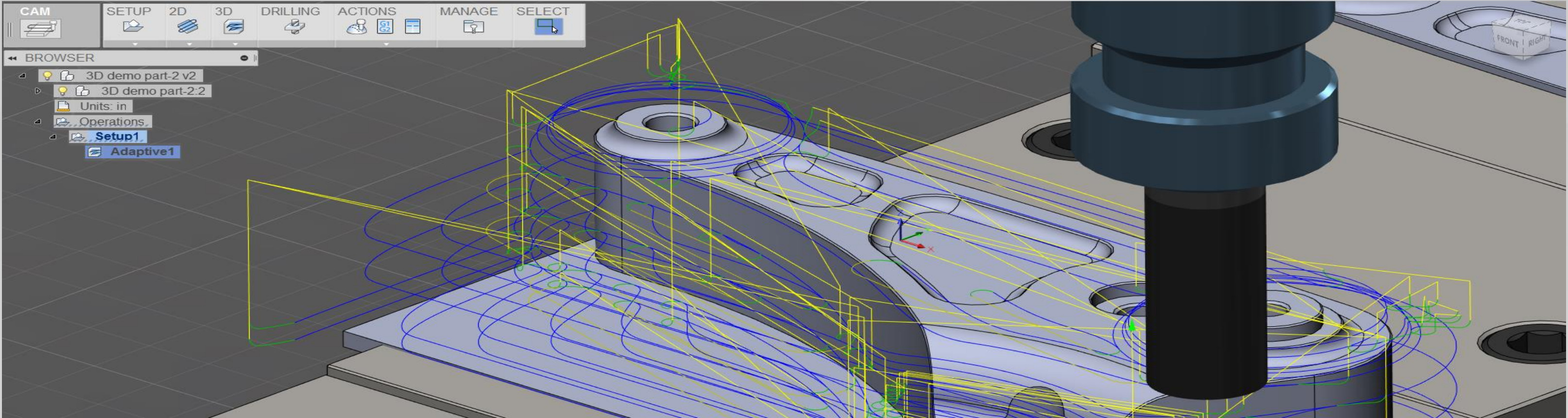




# Next Generation Integrated CAM



AUTODESK® CAM





# HSMWorks: Integrated CAM for SolidWorks

## HSMWorks



3D Milling



4X & 3+2 Milling



Multi-Axis Milling



Turning



Mill/Turn



# Design For Autodesk

- Autodesk has a program in place called [Design for Autodesk](#) that pays teachers and students in the U.S.A. who are 18 or older to learn Autodesk Fusion 360 and give us feedback. Please see the PDF for additional information. Click the following links to learn more about Fusion 360.

■



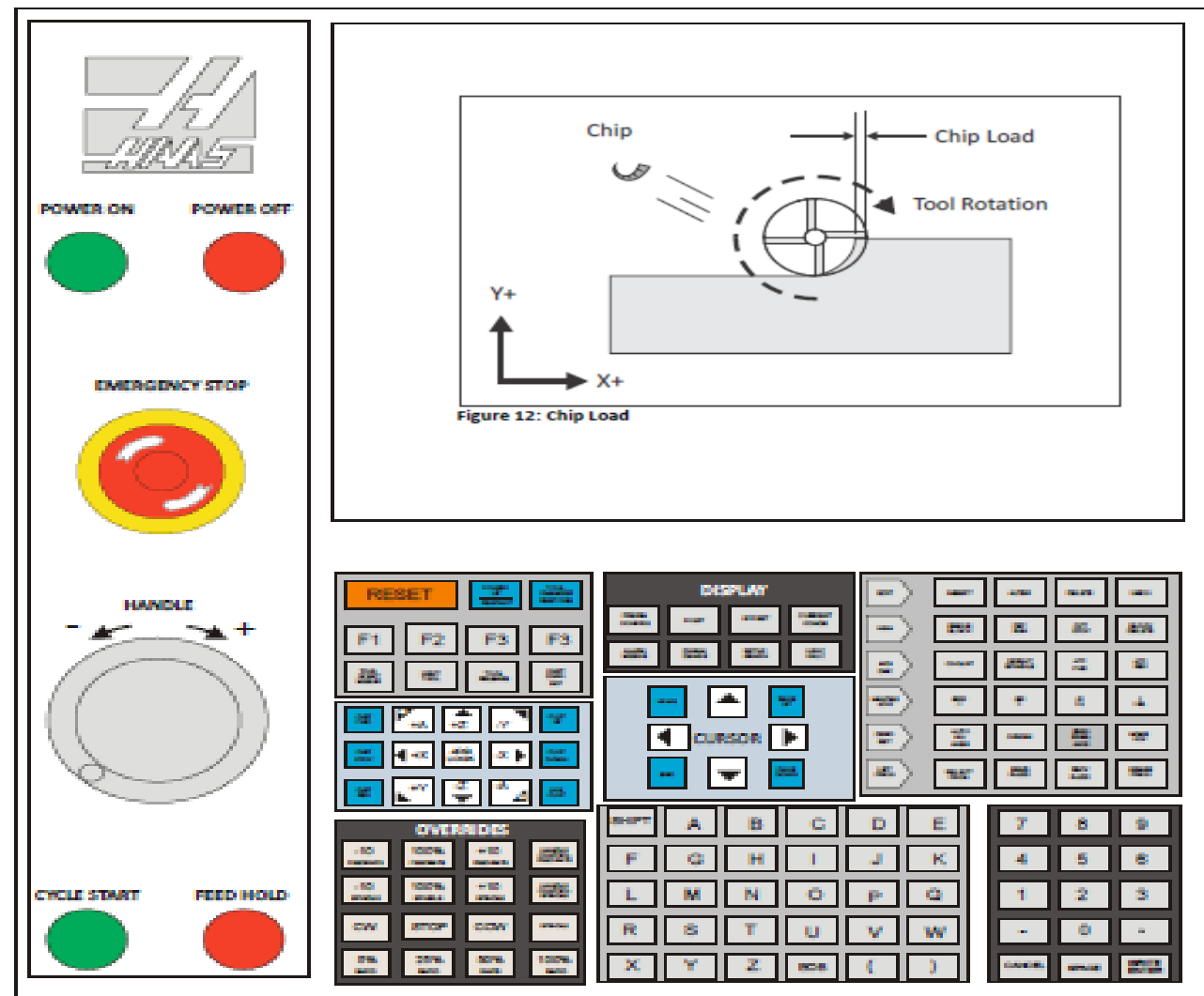
# CAM Learning Content

## CNC Book - Fundamentals

Certified course to teach persons with a technical background how to program and operate Computer Numerical Control (CNC).

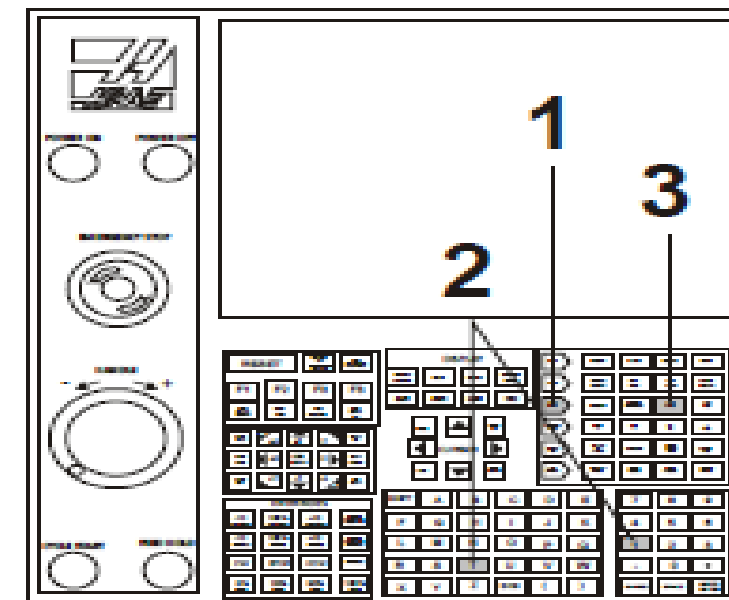
### Haas Control

The Haas control is shown in Figures 2 and 3. Familiarize yourself with the location of buttons and controls. Detailed instructions on the following pages show how to operate the control.



### Load Tools

Check List		Buttons
1	MDI/DNC Key: Select	
2	Tool Number: Enter • For example, to position the tool changer to T1, Press the T and then the 1 buttons.	
3	ATC FWD: Select • Tool carousel will index to T1 position.	

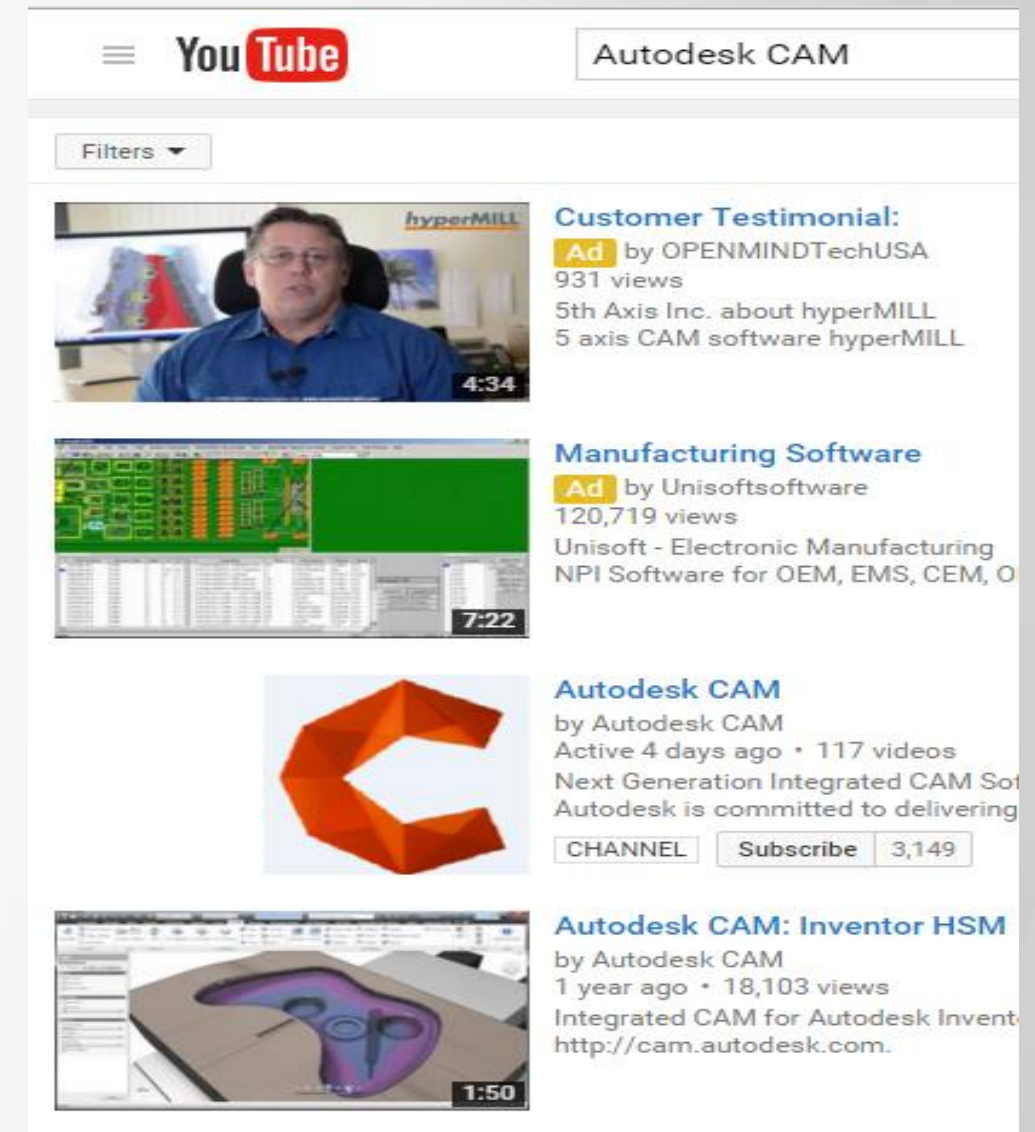


# The CNC Book by Charles Davis

- **Online Fundamentals of CNC Book and Materials:**
- 
- <http://cam.autodesk.germinateapps.com/docs/cncbook/en/>
- <https://www.dropbox.com/s/xzwprocnnx4xrjm/Fundamentals%20of%20CNC.zip>
- <https://www.dropbox.com/s/a57pcn5vm6yoicx/Lesson%20PowerPoints%20and%20projects.zip>
- 
- **Hard copy book link on Amazon.com:**
- [http://www.amazon.com/Machining-Engineers-Makers-Charles-Davis/dp/0615999352/ref=sr\\_1\\_1?ie=UTF8&qid=1396710007&sr=8-1&keywords=CNC+Machining+for+Engineers+%26+Makers](http://www.amazon.com/Machining-Engineers-Makers-Charles-Davis/dp/0615999352/ref=sr_1_1?ie=UTF8&qid=1396710007&sr=8-1&keywords=CNC+Machining+for+Engineers+%26+Makers)

# HSM CAM Support

- **CAM Online Forum and Support Email:**
  - <https://camforum.autodesk.com/>
  - [cam.support@autodesk.com](mailto:cam.support@autodesk.com)
  - [cam.posts@autodesk.com](mailto:cam.posts@autodesk.com)
- **Autodesk Knowledge Network (AKN)**
  - <https://knowledge.autodesk.com/>
- **YouTube Autodesk CAM Channel**
- *Note: All HSM CAM has the same core so you can watch HSM CAM videos on any platform and improve your knowledge and skills.*





# Iven's Picks

- Adaptive Clearing
  - [www.youtube.com/watch?v=9fSTW8TG5WA](http://www.youtube.com/watch?v=9fSTW8TG5WA)
- Authors to follow:
  - Lars Christensen
  - Curtis Chan
- CAD Tips:  
Make everyone's life easier,  
Lars Christensen
  - [www.youtube.com/watch?v=Y6amNRlaAqs](http://www.youtube.com/watch?v=Y6amNRlaAqs)
  - [www.youtube.com/watch?v=JgcE5g8fBP0](http://www.youtube.com/watch?v=JgcE5g8fBP0)
  - [www.youtube.com/watch?v=--FAMdf8sMo](http://www.youtube.com/watch?v=--FAMdf8sMo)



# Fusion Cloud Based CAD CAM

- [Click](#) to **learn** more about Fusion 360
- [Click](#) here to **download** Fusion 360
- [Click](#) to view the Fusion 360 **gallery**
- [Click](#) to **learn** how to use Fusion 360 **YouTube** Channel
- [Click](#) here view the Fusion 360

## How to learn Fusion 360 CAM - Basic - Chapter 1

- [www.youtube.com/watch?v=FDSJoshGc9M](http://www.youtube.com/watch?v=FDSJoshGc9M)
- [www.youtube.com/watch?v=v9OLhgSZYRo](http://www.youtube.com/watch?v=v9OLhgSZYRo)
- [www.youtube.com/watch?v=\\_nb1VNnz4Uc](http://www.youtube.com/watch?v=_nb1VNnz4Uc)
- [www.youtube.com/watch?v=FDSJoshGc9M](http://www.youtube.com/watch?v=FDSJoshGc9M)

# How to learn Inventor HSM CAM

## -Basic - Chapters 1-4

- Easy steps to use Inventor HSM - Basic - Chapter 1-4
  - [www.youtube.com/watch?v=fg3PKWhBnr4](http://www.youtube.com/watch?v=fg3PKWhBnr4)
  - [www.youtube.com/watch?v=5CNG6fj-iLw](http://www.youtube.com/watch?v=5CNG6fj-iLw)
  - [www.youtube.com/watch?v=7NPIMh32ePw](http://www.youtube.com/watch?v=7NPIMh32ePw)
  - [www.youtube.com/watch?v=\\_bt270cVxYQ](http://www.youtube.com/watch?v=_bt270cVxYQ)



# Inventor & Inventor HSM

- Get started with Inventor HSM with some great training material.
- 
- **Training Videos:**
- 
- Job Setup: <http://www.youtube.com/playlist?list=PL4562D7AE854E371B>
- 2D Toolpaths: <http://www.youtube.com/playlist?list=PL8D5FFF908897C40D>
- 3D Toolpaths: <http://www.youtube.com/playlist?list=PL6D62AFCFA779D5C8>
- Multi-Axis Toolpaths: <http://www.youtube.com/playlist?list=PL3D6D59F3005F8BA8>
- Files for Videos: [https://www.dropbox.com/s/fb82x3ogb1ep9ta/CAM\\_Files\\_NexGen.zip](https://www.dropbox.com/s/fb82x3ogb1ep9ta/CAM_Files_NexGen.zip)
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- [cam.support@autodesk.com](mailto:cam.support@autodesk.com)
- [cam.posts@autodesk.com](mailto:cam.posts@autodesk.com)
-

# HSMWorks Content

- HSMWorks 2016 and HSMXpress 2016
  - [www.youtube.com/watch?v=puH5MxkFQP4](http://www.youtube.com/watch?v=puH5MxkFQP4)
- **Training Videos:**
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- Job Setup: <http://www.youtube.com/playlist?list=PL4562D7AE854E371B>
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- 3D Toolpaths: <http://www.youtube.com/playlist?list=PL6D62AFCFA779D5C8>
- Multi-Axis Toolpaths: <http://www.youtube.com/playlist?list=PL3D6D59F3005F8BA8>
- Files for Videos: [https://www.dropbox.com/s/fb82x3ogb1ep9ta/CAM\\_Files\\_NexGen.zip](https://www.dropbox.com/s/fb82x3ogb1ep9ta/CAM_Files_NexGen.zip)
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- <https://www.dropbox.com/s/a57pcn5vm6yoicx/Lesson%20PowerPoints%20and%20projects.zip>
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# Learning Content HSM CAM

- You Tube-Autodesk CAM channel
  - Tutorials Lars Christiansen
- Autodesk Knowledge Network AKN
- Written Tutorials Wayne Griffenberg
- Titan American Built, Mav TV
- What's coming
  - First CAM course

# HSM Works Content

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- <https://www.dropbox.com/s/a57pcn5vm6yoicx/Lesson%20PowerPoints%20and%20projects.zip>
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- [cam.posts@autodesk.com](mailto:cam.posts@autodesk.com)
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# Learning Content HSM CAM

- What's coming next?
  - **First CAM course**
  - **F1 in schools**
    - Inventor
    - Fusion

# Learning Content HSM CAM

- Written Tutorials by Wayne Griffenberg on Milling
  - **HSM Works**
  - **Inventor HSM**
  - **Fusion**
- Titan American Built, Mav TV
- What's coming
  - **First CAM course**



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- [Iven.May@Autodesk.com](mailto:Iven.May@Autodesk.com)
- 415-671-8415



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