

## Steps to CNC Milling

	<b>TIME</b>
1. Get a CAD loft computer account	5 min
2. Solid Edge - 3D Computer Aided Design program (CAD)	
- Go through tutorial	4 hrs
- Create a model of part	1 - 4 hrs
- Design fixturing	1/2 - 1 hr
- Export file as a Parasolid	5 min
3. Virtual Gibbs - Computer Aided Machining program (CAM)	
- Go through tutorial	3 hrs
- Create new file	
- Import Parasolid file	
- Define:	
Part-blank,	1/2 hr
Origin,	1/2 hr
Tools used,	5 min
Tool operations,	1 - 4 hrs
CNC machine to be used	5 min
- Make sure machining does not conflict with fixture	15 min
- Post-process file and export G-Code	5 min
4. Machine Fixturing System	2 - 4 hrs
5. Machine Part-Blank	2 - 4 hrs
6. Become familiar with the CNC machine that you will use	
- Read tutorial in TA Handbook or on PRL website	1 hr
- Design and make a CNC license if you plan to use a Haas Machine	4 hrs
7. Transfer part G-Code to CNC machine	1/2 hr
- Copy G-Code to 3.5" disk or place in "CNC User" folder on network	
- Load file on the appropriate CNC download computer on shop floor	
- Setup CNC machine to receive G-Code	
- Transfer G-Code to CNC machine	
8. CNC	
- Set up fixturing, part-blank, & tools	2 hrs
- Watch program run on screen of Haas machine	1/2 hr
- Machine in air, watching carefully for unexpected behavior	1/2 hr
- Machine test part in plastic	1/2 - 1 hr
- Machine final part	1 hr - 4 hrs
<b>TOTAL: 24 - 40 hrs</b>	
<i>(depends on size, complexity &amp; material - can be less or much more)</i>	

### **History**

ver 1.0      3/98      Ted Bender      original text  
ver 1.1    3/98      Katherine Kuchenbecker    minor revisions and updates