

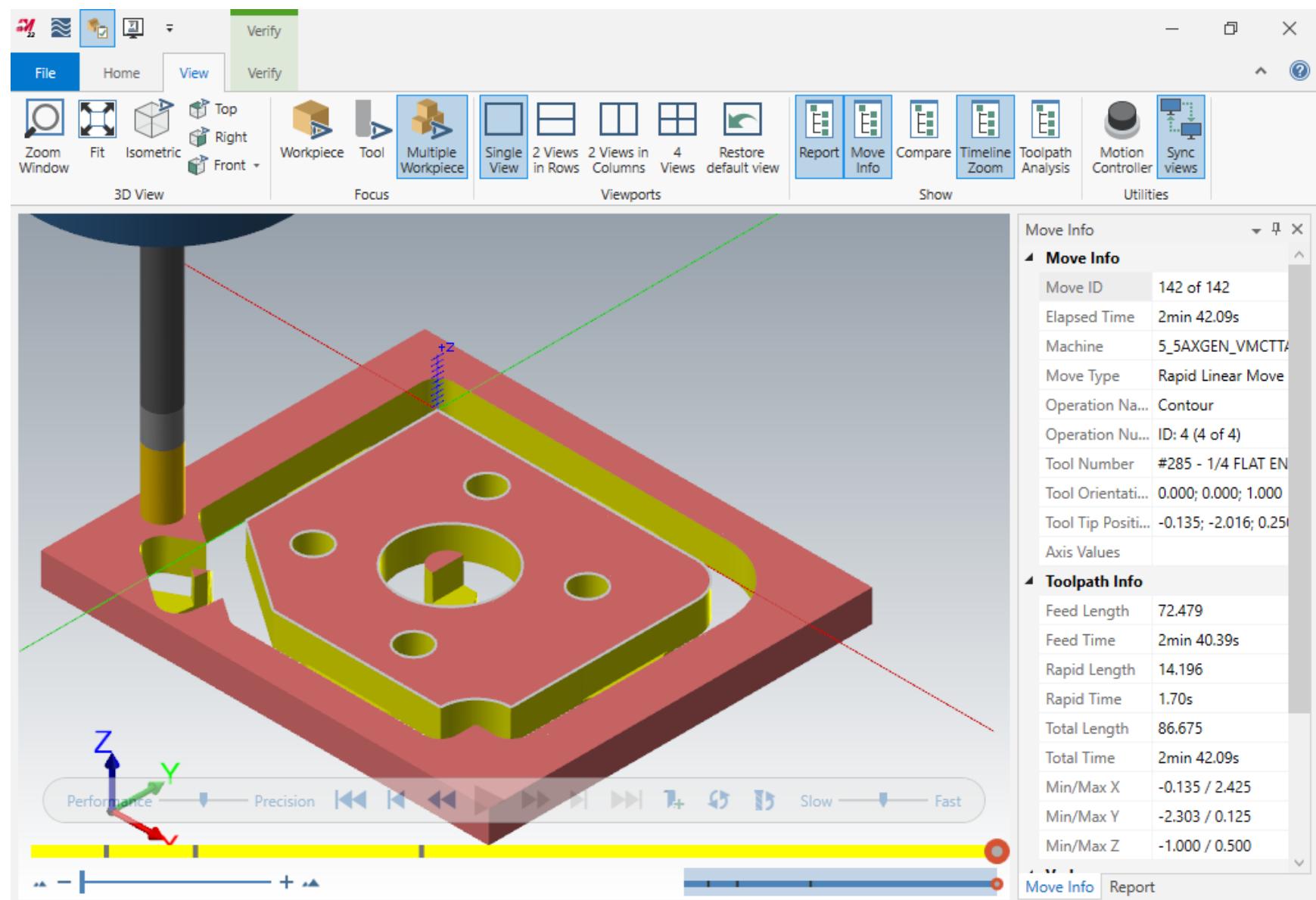
ENGT 3652 Project 3: Threaded Bolt Circles

Leomar Durán

27th April 2023

Chapter 1

Verification of operations in MasterCAM



Chapter 2

The MasterCAM-generated Gcode

```
%  
O44800(Duran - Bolt Circles)  
(DATE=DD-MM-YY - 27-04-23 TIME=HH:MM -  
→ 06:13)  
(MATERIAL - ALUMINUM INCH - 6061)  
( T110 | NO. 7 DRILL | H110 )  
( T219 | 1/4-20 TAPRH | H219 )  
( T285 | 1/4 FLAT ENDMILL | H285 )  
N100 G20  
N110 G0 G17 G40 G49 G80 G90  
N120 T110 M6  
N130 G0 G90 G54 X.7075 Y-.3202 A0. S7601 M3  
N140 G43 H110 Z.5 M8  
N150 G99 G81 Z-.8 R.5 F14.59  
N160 X1.7798 Y-.6075  
N170 X1.4925 Y-1.6798  
N180 X.4202 Y-1.3925  
N190 G80  
N200 M5  
N210 G91 G28 Z0. M9  
N220 A0.  
N230 M01  
N240 T219 M6  
N250 G0 G90 G17 G54 X.7075 Y-.3202 A0.  
→ S1222 M3  
N260 G43 H219 Z.5 M8  
N270 G94  
N280 G99 G84 Z-1. R.5 F61.1  
N290 X1.7798 Y-.6075  
N300 X1.4925 Y-1.6798  
N310 X.4202 Y-1.3925  
N320 G80  
N330 G94  
N340 M5  
N350 G91 G28 Z0. M9  
N360 A0.  
N370 M01  
N380 T285 M6  
N390 G0 G90 G17 G54 X1.2084 Y-.75 A0. S6876  
→ M3  
N400 G43 H285 Z.25 M8  
N410 Z.2  
N420 G1 Z-.0675 F12.22  
N430 X1.075 F27.5  
N440 G3 X.825 Y-1. I0. J-.25  
N450 X1.1 Y-1.275 I.275 J0.  
N460 X1.375 Y-1. I0. J.275  
N470 X1.1 Y-.725 I-.275 J0.  
N480 X.825 Y-1. I0. J-.275  
N490 X1.075 Y-1.25 I.25 J0.  
N500 G1 X1.2084  
N510 Y-.75  
N520 Z-.135 F12.22  
N530 X1.075 F27.5  
N540 G3 X.825 Y-1. I0. J-.25  
N550 X1.1 Y-1.275 I.275 J0.  
N560 X1.375 Y-1. I0. J.275  
N570 X1.1 Y-.725 I-.275 J0.  
N580 X.825 Y-1. I0. J-.275  
N590 X1.075 Y-1.25 I.25 J0.  
N600 G1 X1.2084  
N610 Y-.75  
N620 Z-.2025 F12.22  
N630 X1.075 F27.5  
N640 G3 X.825 Y-1. I0. J-.25  
N650 X1.1 Y-1.275 I.275 J0.  
N660 X1.375 Y-1. I0. J.275  
N670 X1.1 Y-.725 I-.275 J0.  
N680 X.825 Y-1. I0. J-.275  
N690 X1.075 Y-1.25 I.25 J0.  
N700 G1 X1.2084  
N710 Y-.75  
N720 Z-.27 F12.22  
N730 X1.075 F27.5  
N740 G3 X.825 Y-1. I0. J-.25  
N750 X1.1 Y-1.275 I.275 J0.  
N760 X1.375 Y-1. I0. J.275  
N770 X1.1 Y-.725 I-.275 J0.  
N780 X.825 Y-1. I0. J-.275  
N790 X1.075 Y-1.25 I.25 J0.  
N800 G1 X1.2084  
N810 Z-.07 F12.22
```

N820 G0 Z.25
 N830 X.275 Y-2.303
 N840 Z.2
 N850 G1 Z-.065 F12.22
 N860 G41 D285 X.4184 Y-2.0982 F27.5
 N870 G3 X.4636 Y-1.9548 I-.2048 J.1434
 N880 X.357 Y-1.75 I-.25 J0.
 N890 G1 X0. Y-1.5
 N900 Y0.
 N910 X2.025
 N920 G2 X2.3 Y-.275 I0. J-.275
 N930 G1 Y-1.725
 N940 G3 X2.025 Y-2. I0. J-.275
 N950 G1 X.7141
 N960 X.357 Y-1.75
 N970 G3 X.2136 Y-1.7048 I-.1434 J-.2048
 N980 X.0089 Y-1.8114 I0. J-.25
 N990 G1 G40 X-.1345 Y-2.0162
 N1000 X.275 Y-2.303
 N1010 Z-.13 F12.22
 N1020 G41 D285 X.4184 Y-2.0982 F27.5
 N1030 G3 X.4636 Y-1.9548 I-.2048 J.1434
 N1040 X.357 Y-1.75 I-.25 J0.
 N1050 G1 X0. Y-1.5
 N1060 Y0.
 N1070 X2.025
 N1080 G2 X2.3 Y-.275 I0. J-.275
 N1090 G1 Y-1.725
 N1100 G3 X2.025 Y-2. I0. J-.275
 N1110 G1 X.7141
 N1120 X.357 Y-1.75
 N1130 G3 X.2136 Y-1.7048 I-.1434 J-.2048
 N1140 X.0089 Y-1.8114 I0. J-.25
 N1150 G1 G40 X-.1345 Y-2.0162
 N1160 X.275 Y-2.303
 N1170 Z-.195 F12.22
 N1180 G41 D285 X.4184 Y-2.0982 F27.5
 N1190 G3 X.4636 Y-1.9548 I-.2048 J.1434
 N1200 X.357 Y-1.75 I-.25 J0.
 N1210 G1 X0. Y-1.5
 N1220 Y0.
 N1230 X2.025
 N1240 G2 X2.3 Y-.275 I0. J-.275
 N1250 G1 Y-1.725
 N1260 G3 X2.025 Y-2. I0. J-.275
 N1270 G1 X.7141
 N1280 X.357 Y-1.75
 N1290 G3 X.2136 Y-1.7048 I-.1434 J-.2048
 N1300 X.0089 Y-1.8114 I0. J-.25
 N1310 G1 G40 X-.1345 Y-2.0162
 N1320 X.275 Y-2.303
 N1330 Z-.26 F12.22
 N1340 G41 D285 X.4184 Y-2.0982 F27.5
 N1350 G3 X.4636 Y-1.9548 I-.2048 J.1434
 N1360 X.357 Y-1.75 I-.25 J0.
 N1370 G1 X0. Y-1.5
 N1380 Y-.9802
 N1390 Y-.9502 Z-.23
 N1400 Y-.2602
 N1410 Y-.2302 Z-.26
 N1420 Y0.
 N1430 X.7733
 N1440 X.8033 Z-.23
 N1450 X1.4933
 N1460 X1.5233 Z-.26
 N1470 X2.025
 N1480 G2 X2.3 Y-.275 I0. J-.275
 N1490 G1 Y-.4605
 N1500 Y-.4905 Z-.23
 N1510 Y-1.1805
 N1520 Y-1.2105 Z-.26
 N1530 Y-1.725
 N1540 G3 X2.025 Y-2. I0. J-.275
 N1550 G1 X1.6795
 N1560 X1.6495 Z-.23
 N1570 X.9595
 N1580 X.9295 Z-.26
 N1590 X.7141
 N1600 X.357 Y-1.75
 N1610 G3 X.2136 Y-1.7048 I-.1434 J-.2048
 N1620 X.0089 Y-1.8114 I0. J-.25
 N1630 G1 G40 X-.1345 Y-2.0162
 N1640 Z-.06 F12.22
 N1650 G0 Z.25
 N1660 M5
 N1670 G91 G28 Z0. M9
 N1680 G28 X0. Y0. A0.
 N1690 M30
 %

Chapter 3

Plot of MasterCAM-generated Gcode in NCViewer

NC Viewer v1.1.3

Sample

Press Esc to exit full screen

Xander Luciano

GCode File

```
1 %
2 O44800(Duran - Bolt Circles)
3 (DATE=DD-MM-YY - 27-04-23 TIME=HH:MM - 06:13)
4 (MATERIAL - ALUMINUM INCH - 6061)
5 ( T110 | NO. 7 DRILL | H110 )
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8 N100 G20
9 N110 G0 G17 G40 G49 G80 G90
10 N120 T110 M6
11 N130 G0 G90 G54 X.7075 Y-.3202 A0. S7601 M3
12 N140 G43 H110 Z.5 M8
13 N150 G99 G81 Z-.8 R.5 F14.59
14 N160 X1.7798 Y-.6075
15 N170 X1.4925 Y-1.6798
16 N180 X.4202 Y-1.3925
17 N190 G80
18 N200 M5
19 N210 G91 G28 Z0. M9
20 N220 A0.
21 N230 M01
22 N240 T219 M6
23 N250 G0 G90 G17 G54 X.7075 Y-.3202 A0. S1222 M3
24 N260 G43 H219 Z.5 M8
25 N270 G94
26 N280 G99 G84 Z-1. R.5 F61.1
27 N290 X1.7798 Y-.6075
28 N300 X1.4925 Y-1.6798
29 N310 X.4202 Y-1.3925
30 N320 G80
31 N330 G94
32 N340 M5
33 N350 G91 G28 Z0. M9
34 N360 A0.
35 N370 M01
36 N380 T285 M6
37 N390 G0 G90 G17 G54 X1.2084 Y-.75 A0. S6876 M3
38 N400 G43 H285 Z.25 M8
39 N410 Z.2
40 N420 G1 Z-.0675 F12.22
41 N430 X1.075 F27.5
42 N440 G3 X.825 Y-1. I0. J-.25
43 N450 X1.1 Y-1.275 I.275 J0.
44 N460 X1.375 Y-1. I0. J.275
45 N470 X1.1 Y-.725 I-.275 J0.
```

PLOT

Digital Read Out

Machine Options

NC Viewer © 2018 Xander Luciano

Chapter 4

The machined part

