

Work Performance Analysis from PMGT532

by

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Problem 17 from Chapter 8 of the *Managing for Quality and Performance Excellence 9th edition* ask to analyze trend data supplied by a predetermined set of data. Using Excel we developed the trend analysis and chart to evaluate and identify trend information. Below is the problem and the answer I came up with.

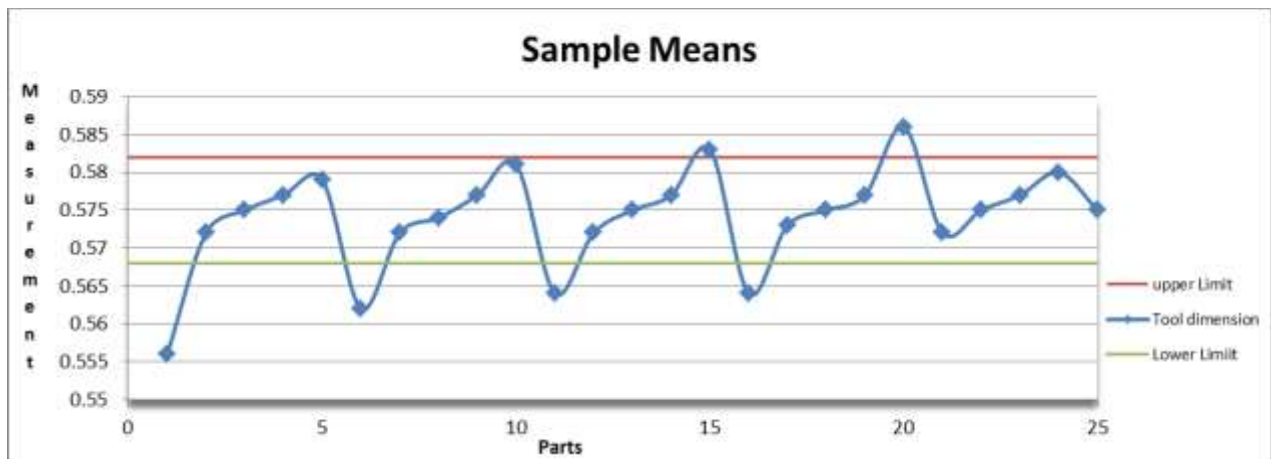
17. A machine process at the Mach4 Tool Co. has a required dimension on a part of 0.575 +/- .007 inches. Twenty five parts each were measure and found in the worksheet tab *Prob. 8-17* in Excel file C08Data.xlsx. What is its capability for producing within the acceptable limits?

Problem 8-17	
Mach4 Tool Co - Machining Process - I	
Nominal Specification	0.575
Upper Specification Limit	0.582
Lower Specification Limit	0.568

Sample Number				
1	2	3	4	5
0.556	0.562	0.564	0.564	0.572
0.572	0.572	0.572	0.573	0.575
0.575	0.574	0.575	0.575	0.577
0.577	0.577	0.577	0.577	0.580
0.579	0.581	0.583	0.586	0.575

Statistics	
Mean	0.574
Median	0.575
Mode	0.575
Population variance	4.28E-05
Population standard deviation	0.006542
Sample variance	4.46E-05
Sample standard deviation	0.006677
Minimum	0.556
Maximum	0.586
Range	0.03

Process Capability Index Calculations (One sided index)			
Data		Results	
Upper tolerance limit	0.582	Process capability index C_p	0.34945834
Lower tolerance limit	0.568	Upper one-sided index C_{pu}	0.39938096
Mean (optional)	0.574	Lower one-sided index C_{pl}	0.29953572
Standard deviation	0.006677	1 sided Process capability index C_{pk}	0.29953572



The analysis indicates that the process has too many data point outside the acceptable limit. The data has rendered the process out of control. Finding out why the process is out of control would be the first priority. Once this is accomplished then the company’s capability maybe assessed.

I suggest using a Fault Tree Analysis to obtain the probable reason for irregularity and wide difference in standards; once accomplished the appropriate standard can be set to identify the probability of meeting the quality needed.