**CONTROL CHARTS**

**Assignment Overview**

You have taken data from a production process in order to develop an Xbar control chart. You have 25 samples of data with 5 parts measured in each sample to get the Xbar and R (Range). Use this data shown in the table.

The [*Case 5 Excel*](https://tlc.trident.edu/d2l/common/dialogs/quickLink/quickLink.d2l?ou=31471&type=content&rCode=TUI-1853) file (same file in Background) contains the data:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sample | 1 | 2 | 3 | 4 | 5 | Xbar | R |
| 1 | 1.55 | 1.58 | 1.64 | 1.67 | 1.50 | 1.588 | 0.17 |
| 2 | 1.52 | 1.62 | 1.71 | 1.74 | 1.60 |   |   |
| 3 | 1.47 | 1.57 | 1.44 | 1.56 | 1.42 |   |   |
| 4 | 1.67 | 1.73 | 1.76 | 1.64 | 1.64 |   |   |
| 5 | 1.46 | 1.52 | 1.60 | 1.41 | 1.43 |   |   |
| 6 | 1.44 | 1.50 | 1.53 | 1.37 | 1.41 |   |   |
| 7 | 1.55 | 1.64 | 1.70 | 1.53 | 1.58 |   |   |
| 8 | 1.54 | 1.72 | 1.66 | 1.52 | 1.57 |   |   |
| 9 | 1.48 | 1.60 | 1.57 | 1.46 | 1.51 |   |   |
| 10 | 1.43 | 1.55 | 1.52 | 1.43 | 1.46 |   |   |
| 11 | 1.40 | 1.52 | 1.56 | 1.38 | 1.43 |   |   |
| 12 | 1.60 | 1.44 | 1.55 | 1.58 | 1.49 |   |   |
| 13 | 1.48 | 1.46 | 1.57 | 1.60 | 1.65 |   |   |
| 14 | 1.56 | 1.54 | 1.65 | 1.68 | 1.59 |   |   |
| 15 | 1.42 | 1.39 | 1.51 | 1.54 | 1.45 |   |   |
| 16 | 1.70 | 1.71 | 1.61 | 1.73 | 1.64 |   |   |
| 17 | 1.51 | 1.35 | 1.37 | 1.49 | 1.40 |   |   |
| 18 | 1.41 | 1.32 | 1.44 | 1.32 | 1.35 |   |   |
| 19 | 1.69 | 1.58 | 1.75 | 1.60 | 1.63 |   |   |
| 20 | 1.67 | 1.56 | 1.79 | 1.58 | 1.61 |   |   |
| 21 | 1.65 | 1.57 | 1.68 | 1.56 | 1.59 |   |   |
| 22 | 1.52 | 1.46 | 1.55 | 1.45 | 1.46 |   |   |
| 23 | 1.51 | 1.41 | 1.54 | 1.42 | 1.45 |   |   |
| 24 | 1.62 | 1.51 | 1.69 | 1.53 | 1.56 |   |   |
| 25 | 1.57 | 1.46 | 1.60 | 1.47 | 1.51 |   |   |

1. **First plot the data using (Excel).**
2. Then determine the UCL and LCL. Do any of the data points need to be thrown out? If so, then recalculate the UCL and LCL.
3. Then you begin to plot results on this chart. Here are the next 6 samples of data (sample size = 5).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Sample # | 1 | 2 | 3 | 4 | 5 | Xbar |
| 26 | 1.51 | 1.35 | 1.37 | 1.49 | 1.40 |   |
| 27 | 1.41 | 1.32 | 1.44 | 1.32 | 1.35 |   |
| 28 | 1.69 | 1.58 | 1.72 | 1.60 | 1.63 |   |
| 29 | 1.67 | 1.56 | 1.70 | 1.58 | 1.61 |   |
| 30 | 1.65 | 1.57 | 1.68 | 1.56 | 1.59 |   |
| 31 | 1.52 | 1.46 | 1.55 | 1.45 | 1.46 |   |

Plot these on the control chart.

1. Is the process in control?

Provide a **one page** paper discussing the problem, what you did to solve it and what your specific recommendation or plan is for monitoring quality. Upload your paper into the Case 5 area and upload your Excel file into Additional Files.

**Assignment Expectations**

1. Answer questions with clarity and show the detailed steps for calculation if any. Turn in your answers by module due date.