

LAMPIRAN

PERHITUNGAN SEBELUM KALIBRASI

Varian A

$$S^2 = \frac{n \cdot \sum x^2 - (\sum x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.31,1751 - (14,52)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{211,0506 - 210,8304}{30}$$

$$S^2 = \frac{0,22}{30} = 0,00734$$

$$SD = (\text{Standar Deviasi}) S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi}) S^2 = \sqrt{0,00734} = 0,0856$$

Varian B

$$S^2 = \frac{n \cdot \sum x^2 - (\sum x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.33,5615 - (14,19)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{201,369 - 201,3561}{30}$$

$$S^2 = \frac{0,0129}{30} = 0,0043$$

$$SD = (\text{Standar Deviasi}) S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi}) S^2 = \sqrt{0,0043} = 0,0655$$

Varian C

$$S^2 = \frac{n \cdot \sum x^2 - (\sum x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.31,9469 - (13,84)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{191,6975 - 191,5456}{30}$$

$$S^2 = \frac{0,2429}{30} = 0,1519$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,1519} = 0,3897$$

Varian D

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6,32,5984 - (13,98)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{195,5904 - 195,4404}{30}$$

$$S^2 = \frac{0,15}{30} = 0,005$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,005} = 0,0707$$

Varian E

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6,35,2992 - (14,55)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{211,7952 - 211,7025}{30}$$

$$S^2 = \frac{0,0927}{30} = 0,0030$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0030} = 0,0547$$

Varian F

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.33,52 - (14,09)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{201,12 - 198,5281}{30}$$

$$S^2 = \frac{2,5919}{30} = 0,0863$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0863} = 0,2937$$

Varian G

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.33,2906 - (14,34)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{199,7436 - 205,6356}{30}$$

$$S^2 = \frac{-5,892}{20} = -0,1964$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{-0,1964} = 0,0385$$

Varian H

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.32,6457 - (13,99)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{195,8742 - 195,7201}{30}$$

$$S^2 = \frac{0,1541}{30} = 0,0051$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0051} = 0,0714$$

Varian I

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.31,573 - (13,76)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{189,438 - 189,3376}{30}$$

$$S^2 = \frac{0,1004}{30} = 0,0033$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0033} = 0,574$$

Varian J

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.31,8877 - (13,83)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{191,3226 - 191,2689}{30}$$

$$S^2 = \frac{0,0537}{30} = 0,0017$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0017} = 0,041$$

PERHITUNGAN SESUDAH KALIBRASI

Varian A

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.28,9584 - (13,18)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{173,7504 - 173,7224}{30}$$

$$S^2 = \frac{0,028}{30} = 0,0009$$

$$SD = (\text{Standar Deviasi}) S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi}) S^2 = \sqrt{0,0009} = 0,03$$

Varian B

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.27,2655 - (12,79)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{163,593 - 163,5841}{30}$$

$$S^2 = \frac{0,0089}{30} = 0,0002$$

$$SD = (\text{Standar Deviasi}) S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi}) S^2 = \sqrt{0,0002} = 0,0141$$

Varian C

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.28,9095 - (13,17)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{173,577 - 173,4489}{30}$$

$$S^2 = \frac{0,1281}{30} = 0,0042$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0042} = 0,0648$$

Varian D

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.27,7843 - (12,91)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{166,7058 - 166,6681}{30}$$

$$S^2 = \frac{0,0377}{30} = 0,0012$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0012} = 0,0346$$

Varian E

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.27,6949 - (12,89)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{166,1694 - 166,1521}{30}$$

$$S^2 = \frac{0,0173}{30} = 0,0005$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0005} = 0,0223$$

Varian F

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.27,3519 - (12,81)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{164,1114 - 164,0961}{30}$$

$$S^2 = \frac{0,0153}{30} = 0,0005$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0005} = 0,0223$$

Varian G

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.28,2612 - (13,02)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{169,5672 - 169,5204}{30}$$

$$S^2 = \frac{0,0468}{30} = 0,0015$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0015} = 0,0387$$

Varian H

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.27,7797 - (12,91)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{166,6782 - 166,6681}{30}$$

$$S^2 = \frac{0,0101}{30} = 0,0003$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0003} = 0,0173$$

Varian I

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.27,9573 - (12,95)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{167,7438 - 167,7025}{30}$$

$$S^2 = \frac{0,0413}{30} = 0,0013$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0013} = 0,0360$$

Varian J

$$S^2 = \frac{n \cdot \Sigma x^2 - (\Sigma x)^2}{n \cdot (n - 1)}$$

$$S^2 = \frac{6.27,9098 - (12,94)^2}{6 \cdot (6 - 1)}$$

$$S^2 = \frac{167,4588 - 167,4436}{30}$$

$$S^2 = \frac{0,0152}{30} = 0,0005$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{S_1^2}$$

$$SD = (\text{Standar Deviasi})S^2 = \sqrt{0,0005} = 0,0223$$

LEVELING MEJA MESIN CNC ROUTER SUMBU Y

N0	1	2	3	4	5	6	7
1	0	0	0	0	0	0	0
2	0,08	0,02	0,01	-0,04	-0,07	-0,08	-0,10
3	0,23	0,13	0,07	-0,02	-0,05	-0,10	-0,13
4	0,37	0,28	0,16	0,08	-0,03	-0,10	-0,16
5	0,43	0,34	0,22	0,10	0	-0,11	-0,19
6	0,49	0,39	0,25	0,16	0,03	-0,08	-0,16
7	0,46	0,41	0,34	0,20	0,09	-0,01	0,10
8	0,38	0,35	0,34	0,21	0,11	-0,03	0
9	0,20	0,27	0,25	0,22	0,18	0,14	0,12
10	0,01	0,13	0,19	0,20	0,20	0,20	0,23

LEVELING MEJA MESIN CNC ROUTER SUMBU X

N0	1	2	3	4	5	6	7	8	9	10
1	0	0	0	0	0	0	0	0	0	0
2	0,20	0,16	0,10	0,7	0,08	0,08	0,11	0,15	0,24	0,28
3	0,41	0,38	0,31	0,25	0,24	0,22	0,28	0,35	0,46	0,57
4	0,45	0,39	0,29	0,19	0,15	0,14	0,20	0,30	0,44	0,61
5	0,26	0,11	0,05	-0,12	-0,18	-0,15	-0,15	0,04	0,19	0,41
6	-0,1	-0,22	-0,40	-0,57	-0,71	-0,66	-0,61	-0,04	-0,22	0,05
7	-0,4	-0,52	-0,75	-0,57	-0,98	-0,70	-1,1	0,15	-0,59	0,25



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KARTU REVISI UJIAN TUGAS AKHIR

Nama : *Feriagam Nayorama WK* Topik TA : *Analisa sumber 2 pd proses kalibrasi & pergerakan mesin*
NIM : *D200 100 117* Pembimbing I : *Bambang WF*
Tanggal Ujian : *2 Juli 2016* Pembimbing II : *Joko S*

No	Tanggal	Materi Revisi	Penguji
1.	<i>2 Juli 2016</i>	<i>Perbaiki standar deviasi → OK. leveling mesin mesin dimasukkan ke laporan.</i> <i>an</i> <i>[Signature]</i>	<i>[Signature]</i> <i>an</i> <i>23/7/16</i> <i>[Signature]</i> <i>an</i> <i>23/7/2016</i> <i>[Signature]</i>

Mengetahui
Ketua Ujian TA

(*Bambang WF*)

Surakarta, *2 Juli 2016*
Sekretaris Ujian TA

(*Joko S*)