Lampiran 01. Dokumentasi Penelitian

Gambar Spesimen Uji

Pengambilan Data Ujian *Impact* di Lab Teknik Mesin Universitas Udayana

Pengambilan Gambaran Struktur Mikro Patahan di Lab CNC PTM UNDIKSHA

Lampiran 02. Gambar Hasil Pengujian *Impac*t

A. Orientasi Serat *Woven*

5,4 Nm

5,2 Nm

5,5 Nm

5,6 Nm

5,4 Nm

5,3 Nm

5,6 Nm

5,7 Nm

5,8 Nm

5,5 Nm

Gambar Speseimen Setelah Uji *Impact*

B. 0rientasi serat *Continuous*

4,1 Nm

4,1 Nm

4,2 Nm

4,3 Nm

4,1, Nm

4,3 Nm

4,5 Nm

4,5 Nm

4,4 Nm

4,2 Nm

Ganbar Spesiemen Setelah Diuji *Impact*

C. Orientasi Serat *Discontinuous*

3,2 Nm

3,3 Nm

3,4 Nm

2,9 Nm

3,4 Nm

3,5 Nm

3,1 Nm

3,5 Nm

3,1 Nm

3,0 Nm

Gambar Spesimen Setelah Di Uji *Impact*

Lampiran 03. Uji Normalitas dengan Pengujian aplikasi SPSS

```
EXAMINE VARIABLES=Kekuatan_Impact BY Orientasi_Serat
  /PLOT BOXPLOT STEMLEAF NPPLOT
  /COMPARE GROUP
  /STATISTICS DESCRIPTIVES
  /CINTERVAL 95
  /MISSING LISTWISE

  /NOTOTAL.
```

Explore

Notes

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	Cases Used	Statistics are based on cases with no missing values for any dependent variable or factor used.
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[DataSet0]

Orientasi_Serat

Case Processing Summary

		Cases					
		Valid		Missing		Total	
	Orientasi_Serat	N	Percent	N	Percent	N	Percent
Kekuatan_Impact	Continuous	10	100.0%	0	.0%	10	100.0%
	Discontinuous	10	100.0%	0	.0%	10	100.0%
	Woven	10	100.0%	0	.0%	10	100.0%

Descriptives

	Orientasi_Serat			Statistic	Std. Error
Kekuatan_Impact	Continuous	Mean		1.0829E3	13.86587
		95% Confidence Interval for Mean	Lower Bound	1.0515E3	
			Upper Bound	1.1143E3	
		5% Trimmed Mean		1.0820E3	
		Median		1.0773E3	
		Variance		1.923E3	
		Std. Deviation		4.38477E1	
		Minimum		1035.32	
		Maximum		1147.24	
		Range		111.93	
		Interquartile Range		90.94	
		Skewness		.403	.687
		Kurtosis		-1.285	1.334
	Discontinuous	Mean		7.9468E2	17.79515
		95% Confidence Interval for Mean	Lower Bound	7.5442E2	
			Upper Bound	8.3493E2	
		5% Trimmed Mean		7.9592E2	
		Median		7.9747E2	
		Variance		3.167E3	

		Std. Deviation		5.62732E1	
		Minimum		699.54	
		Maximum		867.43	
		Range		167.89	
		Interquartile Range		97.94	
		Skewness		-.279	.687
		Kurtosis		-.751	1.334
	Woven	Mean		1.4271E3	16.15517
		95% Confidence Interval for Mean	Lower Bound	1.3905E3	
			Upper Bound	1.4636E3	
		5% Trimmed Mean		1.4271E3	
		Median		1.4271E3	
		Variance		2.610E3	
		Std. Deviation		5.10871E1	
		Minimum		1343.12	
		Maximum		1511.01	
		Range		167.89	
		Interquartile Range		69.95	
		Skewness		.000	.687
		Kurtosis		-.450	1.334

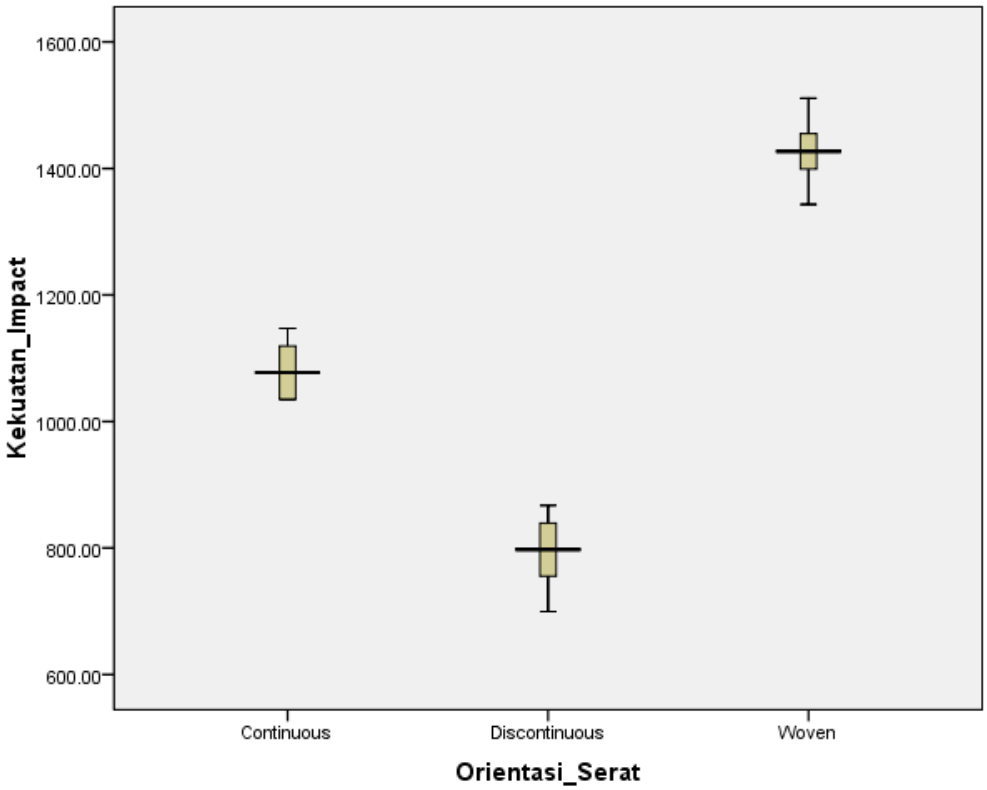
Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Orientasi_Serat	Statistic	df	Sig.	Statistic	df	Sig.
Kekuatan_Impact	Continuous	.172	10	.200*	.883	10	.140
	Discontinuous	.121	10	.200*	.954	10	.717
	Woven	.108	10	.200*	.984	10	.982

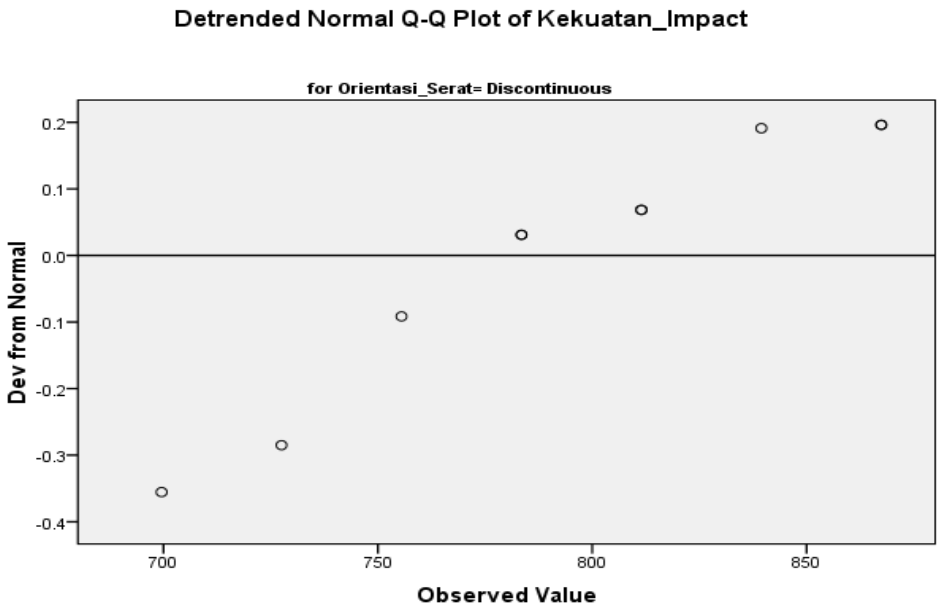
a. Lilliefors Significance Correction

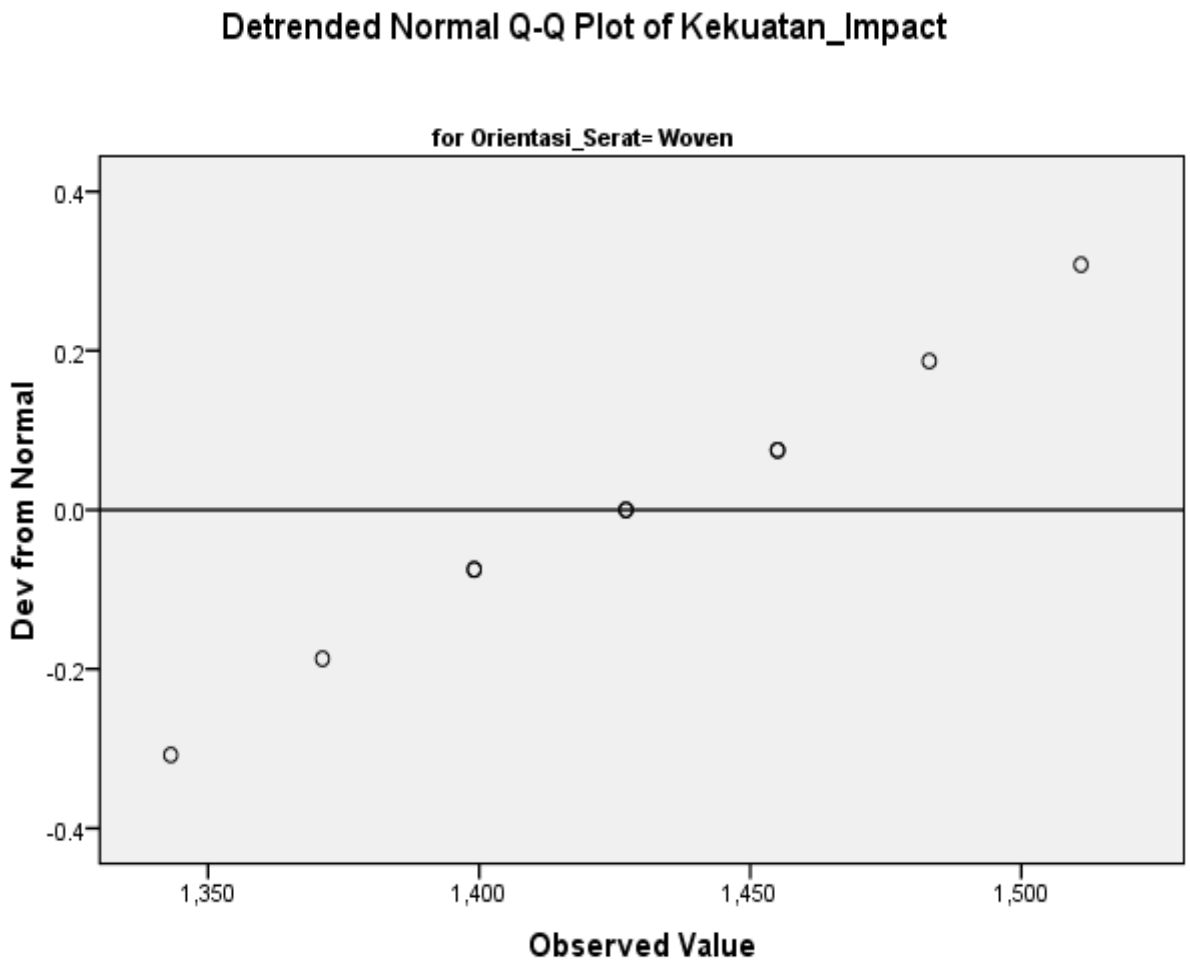
*. This is a lower bound of the true significance.

Kekuatan_Impact

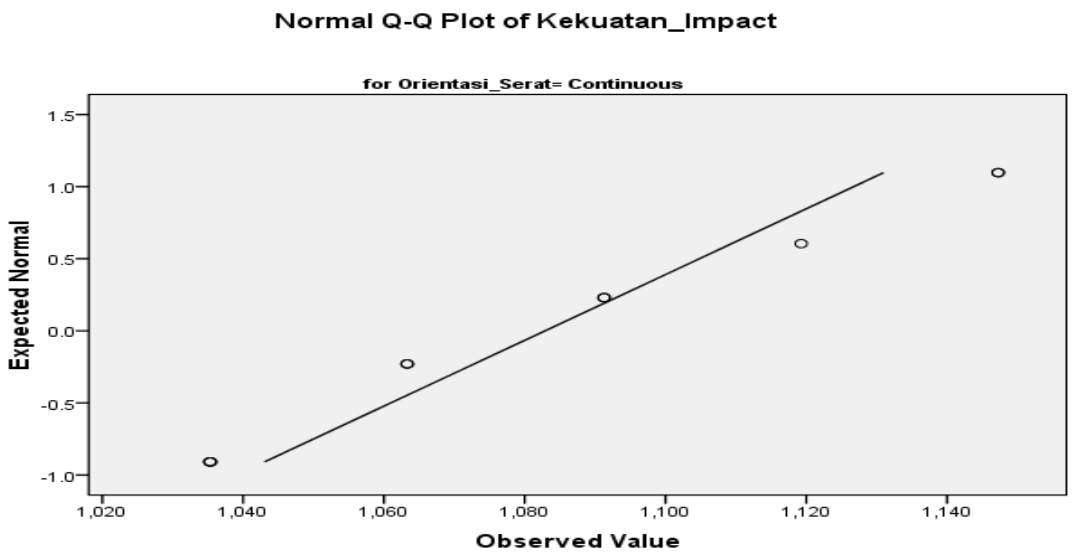


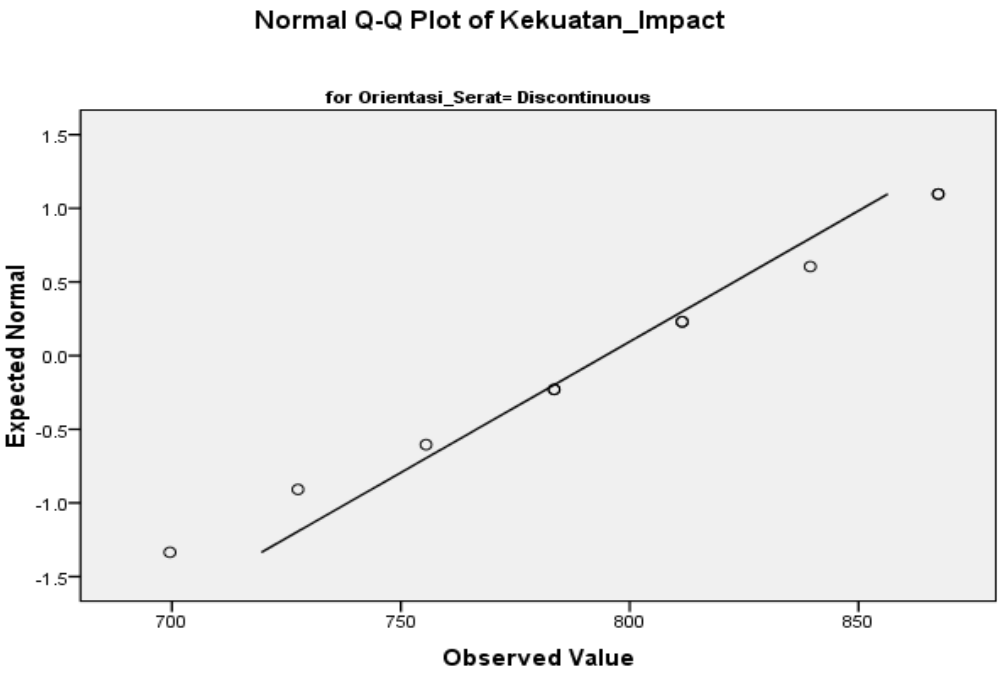
Detrended Normal Q-Q Plots

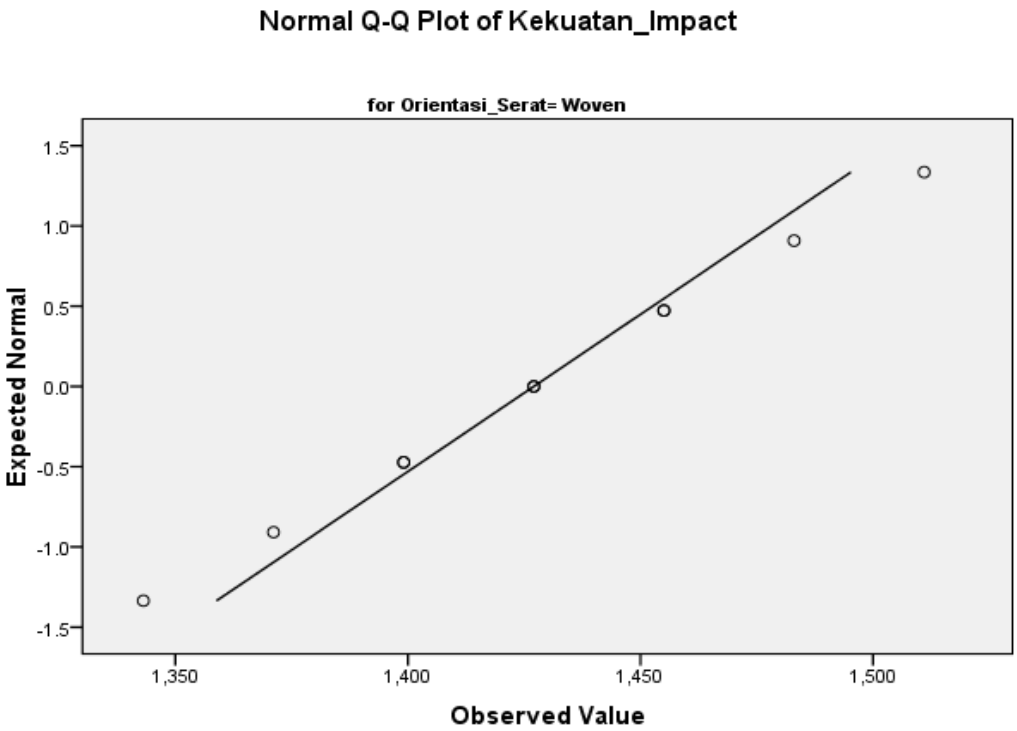




Normal Q-Q Plots




Normal Q-Q Plot of Kekuatan_Impact
for Orientasi_Serat= Discontinuous
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
700
750
800
850
Observed Value


Normal Q-Q Plot of Kekuatan_Impact
for Orientasi_Serat= Woven
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
1,350
1,400
1,450
1,500
Observed Value

Stem-and-Leaf Plots

```
Kekuatan_Impact Stem-and-Leaf Plot for
Orientasi_Serat= Continuous

 Frequency    Stem &  Leaf

     3,00       10 .  333
     4,00       10 .  6699
     3,00       11 .  144

 Stem width:    100,00
 Each leaf:       1 case(s)
```

```
Kekuatan_Impact Stem-and-Leaf Plot for
Orientasi_Serat= Discontinuous

 Frequency    Stem &  Leaf

     1,00        6 .  9
     1,00        7 .  2
     3,00        7 .  588
     3,00        8 .  113
     2,00        8 .  66

 Stem width:    100,00
 Each leaf:       1 case(s)
```

```
Kekuatan_Impact Stem-and-Leaf Plot for
Orientasi_Serat= Woven

 Frequency    Stem &  Leaf

     1,00       13 .  4
     3,00       13 .  799
     2,00       14 .  22
     3,00       14 .  558
     1,00       15 .  1

 Stem width:    100,00
 Each leaf:       1 case(s)
```

Lampiran 04. Uji Homogenitas dengan Aplikasi SPSS

```
ONEWAY Kekuatan_Impact BY Orientasi_Serat
  /STATISTICS HOMOGENEITY
  /PLOT MEANS
  /MISSING ANALYSIS

  /POSTHOC=TUKEY ALPHA(0.05).
```

Oneway

Notes

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	Cases Used	Statistics for each analysis are based on cases with no missing data for any variable in the analysis.
Syntax		ONEWAY Kekuatan_Impact BY Orientasi_Serat /STATISTICS HOMOGENEITY /PLOT MEANS /MISSING ANALYSIS /POSTHOC=TUKEY ALPHA(0.05).
Resources	Processor Time	00:00:00.219
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Multiple Comparisons

Kekuatan_Impact

Tukey HSD

(I) Orientasi_Serat	(J) Orientasi_Serat	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Continuous	Discontinuous	288.21021*	22.65567	.000	232.0373	344.3831
	Woven	-344.17339*	22.65567	.000	-400.3463	-288.0005
Discontinuous	Continuous	-288.21021*	22.65567	.000	-344.3831	-232.0373
	Woven	-632.38360*	22.65567	.000	-688.5565	-576.2107
Woven	Continuous	344.17339*	22.65567	.000	288.0005	400.3463
	Discontinuous	632.38360*	22.65567	.000	576.2107	688.5565

*. The mean difference is significant at the 0.05 level.

Test of Homogeneity of Variances

Kekuatan_Impact

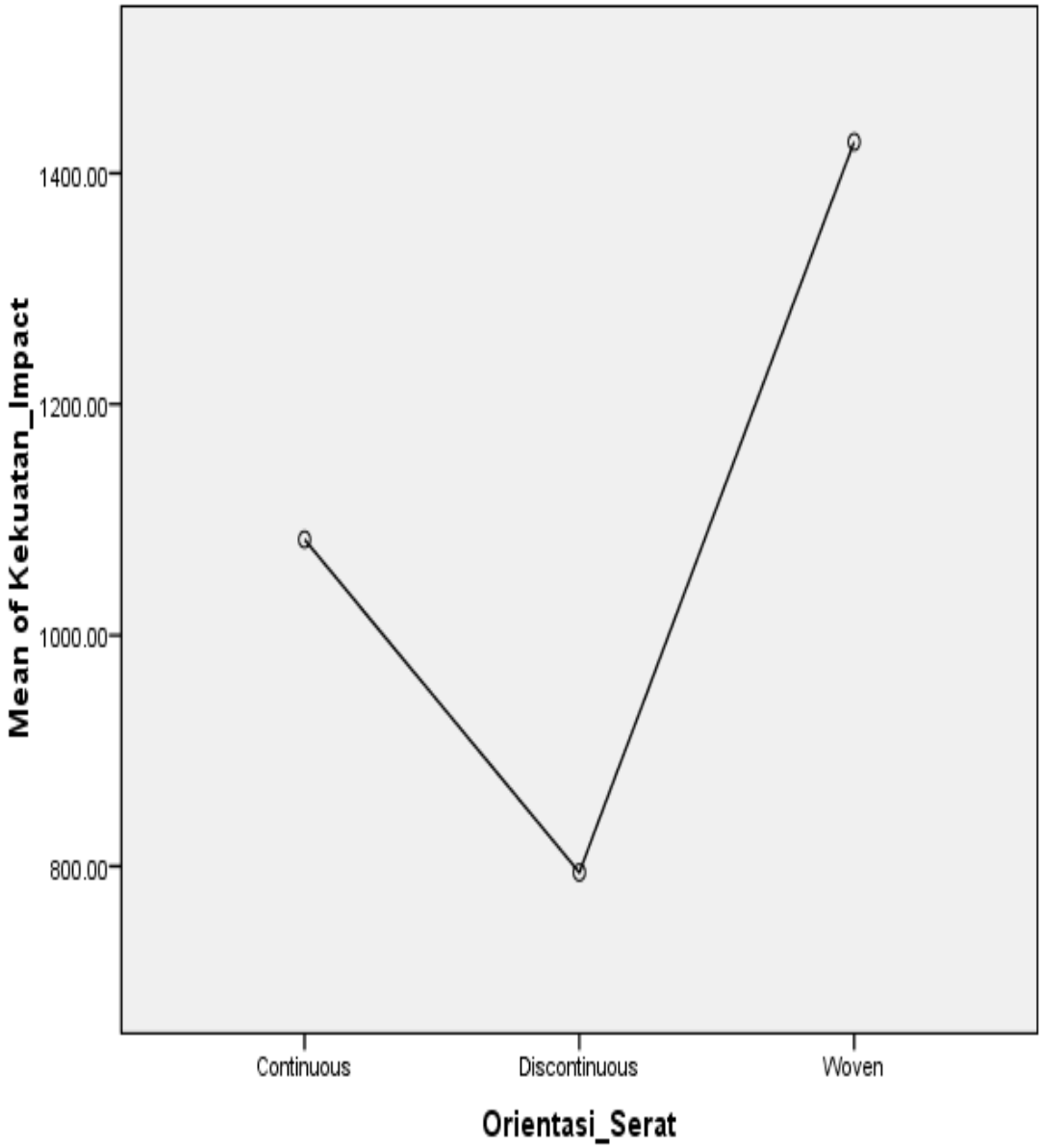
Levene Statistic	df1	df2	Sig.
.239	2	27	.789

ANOVA

Kekuatan_Impact

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2004764.877	2	1002382.439	390.580	.000
Within Groups	69292.731	27	2566.397		
Total	2074057.608	29			

Means Plots



Post Hoc Tests

Homogeneous Subsets

Kekuatan_Impact

Tukey HSD

Orientasi_Serat	N	Subset for alpha = 0.05		
		1	2	3
Discontinuous	10	7.9468E2		
Continuous	10		1.0829E3	
Woven	10			1.4271E3
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

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Lampiran 05. F Tabel

Titik Persentase Distribusi F untuk Probabilita = 0,05

df untuk penyebut (N2)	df untuk pembilang (N1)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	161	199	216	225	230	234	237	239	241	242	243	244	245	245	246
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38	19.40	19.40	19.41	19.42	19.42	19.43
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.76	8.74	8.73	8.71	8.70
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.94	5.91	5.89	5.87	5.86
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.70	4.68	4.66	4.64	4.62
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.03	4.00	3.98	3.96	3.94
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.60	3.57	3.55	3.53	3.51
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.31	3.28	3.26	3.24	3.22
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.10	3.07	3.05	3.03	3.01
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.94	2.91	2.89	2.86	2.85
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.82	2.79	2.76	2.74	2.72
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.72	2.69	2.66	2.64	2.62
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.63	2.60	2.58	2.55	2.53
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.57	2.53	2.51	2.48	2.46
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.51	2.48	2.45	2.42	2.40
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.46	2.42	2.40	2.37	2.35
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.41	2.38	2.35	2.33	2.31
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.37	2.34	2.31	2.29	2.27
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38	2.34	2.31	2.28	2.26	2.23
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35	2.31	2.28	2.25	2.22	2.20
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32	2.28	2.25	2.22	2.20	2.18
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.30	2.26	2.23	2.20	2.17	2.15
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.27	2.24	2.20	2.18	2.15	2.13
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.25	2.22	2.18	2.15	2.13	2.11
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.24	2.20	2.16	2.14	2.11	2.09
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27	2.22	2.18	2.15	2.12	2.09	2.07
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25	2.20	2.17	2.13	2.10	2.08	2.06
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24	2.19	2.15	2.12	2.09	2.06	2.04
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22	2.18	2.14	2.10	2.08	2.05	2.03
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.16	2.13	2.09	2.06	2.04	2.01
31	4.16	3.30	2.91	2.68	2.52	2.41	2.32	2.25	2.20	2.15	2.11	2.08	2.05	2.03	2.00
32	4.15	3.29	2.90	2.67	2.51	2.40	2.31	2.24	2.19	2.14	2.10	2.07	2.04	2.01	1.99
33	4.14	3.28	2.89	2.66	2.50	2.39	2.30	2.23	2.18	2.13	2.09	2.06	2.03	2.00	1.98
34	4.13	3.28	2.88	2.65	2.49	2.38	2.29	2.23	2.17	2.12	2.08	2.05	2.02	1.99	1.97
35	4.12	3.27	2.87	2.64	2.49	2.37	2.29	2.22	2.16	2.11	2.07	2.04	2.01	1.99	1.96
36	4.11	3.26	2.87	2.63	2.48	2.36	2.28	2.21	2.15	2.11	2.07	2.03	2.00	1.98	1.95
37	4.11	3.25	2.86	2.63	2.47	2.36	2.27	2.20	2.14	2.10	2.06	2.02	2.00	1.97	1.95
38	4.10	3.24	2.85	2.62	2.46	2.35	2.26	2.19	2.14	2.09	2.05	2.02	1.99	1.96	1.94
39	4.09	3.24	2.85	2.61	2.46	2.34	2.26	2.19	2.13	2.08	2.04	2.01	1.98	1.95	1.93
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.08	2.04	2.00	1.97	1.95	1.92
41	4.08	3.23	2.83	2.60	2.44	2.33	2.24	2.17	2.12	2.07	2.03	2.00	1.97	1.94	1.92
42	4.07	3.22	2.83	2.59	2.44	2.32	2.24	2.17	2.11	2.06	2.03	1.99	1.96	1.94	1.91
43	4.07	3.21	2.82	2.59	2.43	2.32	2.23	2.16	2.11	2.06	2.02	1.99	1.96	1.93	1.91
44	4.06	3.21	2.82	2.58	2.43	2.31	2.23	2.16	2.10	2.05	2.01	1.98	1.95	1.92	1.90
45	4.06	3.20	2.81	2.58	2.42	2.31	2.22	2.15	2.10	2.05	2.01	1.97	1.94	1.92	1.89

1

RIWAYAT HIDUP

I Made Pasek Budi Susila, lahir di desa Jungutan, 31 Desember 1998, dimana penulis ini lahir dari pasangan suami istri I Komang Mangku Geria dan almarhum Ni Wayan Sudariani. Penulis berkebangsaan Indonesia dan beragama Hindu, yang sekarang tinggal di Jalan Laksamana, Gang Dharma Blok A. Dimana asal asli penulis ini berasal dari Banjar Dinas Untalan, Desa Jungutan, Kecamatan Bebandem, Kabupaten Karangasem, Provinsi Bali. Penulis yang mengenyam pendidikan Sekolah Dasar di SD Negeri 6 Jungutan dari tahun 2005-2011, dan berlanjut ke Sekolah Menengah Pertama di SMP Negeri 1 Bebandem pada tahun 2011-2014 dan pada jenjang selanjutnya penulis menempuh pendidikan di Sekolah Menengah Kejuruan di SMK Negeri 1 Abang dengan Jurusan Teknik Kendaraan Ringan (TKR) pada tahun 2014-2017, dan saat ini penulis melanjutkan pendidikan di Perguruan Tinggi Negeri, Universitas Pendidikan Ganesha pada tahun 2017 yang memilih Program Studi S1 Pendidikan Teknik Mesin, Jurusan Teknologi Industri, Fakultas Teknik dan Kejuruan.