

## DAFTAR PUSTAKA

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## Lampiran 1 ILO Recommended Allowances

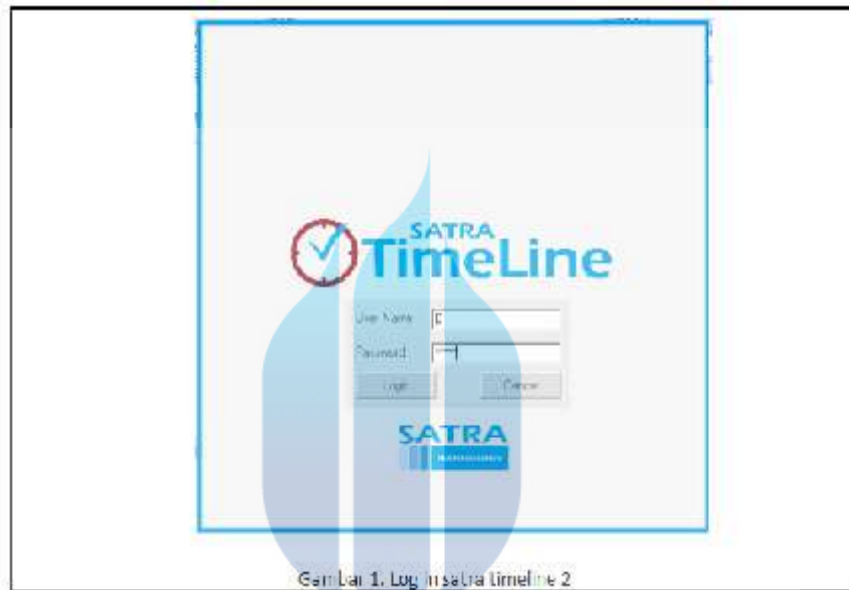
A.	Constant allowances:	5
1.	Personal allowanc	4
2.	Basic fatigue allowance	
B.	Variable allowances:	
1.	Standing allowance	2
2.	Abnormal position allowance:	
a.	Slightly awkward	0
b.	Awkward (bending)	2
c.	Very awkward (lying, stretching)	7
3.	Use of force, or muscular energy: Weight lifted, pounds:	
	5	0
	10	1
	15	2
	20	3
	25	4
	30	5
	35	7
	40	9
	45	11
	50	13
	60	17
	70	22
4.	Bad light:	
a.	Slightly below recommended	0
b.	Well below	2
c.	Quite inadequate	5
5.	Atmospheric conditions	0-100
6.	Close attention:	

- |     |    |                                   |   |
|-----|----|-----------------------------------|---|
|     | a. | Fairly fine work                  | 0 |
|     | b. | Fine or exacting                  | 2 |
|     | c. | Very fine or very exacting        | 5 |
| 7.  |    | Noise level:                      |   |
|     | a. | Continuous                        | 0 |
|     | b. | Intermittent - loud               | 2 |
|     | c. | Intermittent - very loud          | 5 |
|     | d. | High-pitched - loud               | 5 |
| 8.  |    | Menta strain:                     |   |
|     | a. | Fairly complex process            | 1 |
|     | b. | Complex or wide span of attention | 4 |
|     | c. | Very complex                      | 8 |
| 9.  |    | Monotony:                         |   |
|     | a. | Low                               | 0 |
|     | b. | Medium                            | 1 |
|     | c. | High                              | 4 |
| 10. |    | Tediousness:                      |   |
|     | a. | Rather tedious                    | 0 |
|     | b. | Tedious                           | 2 |
|     | c. | Very tedious                      | 5 |

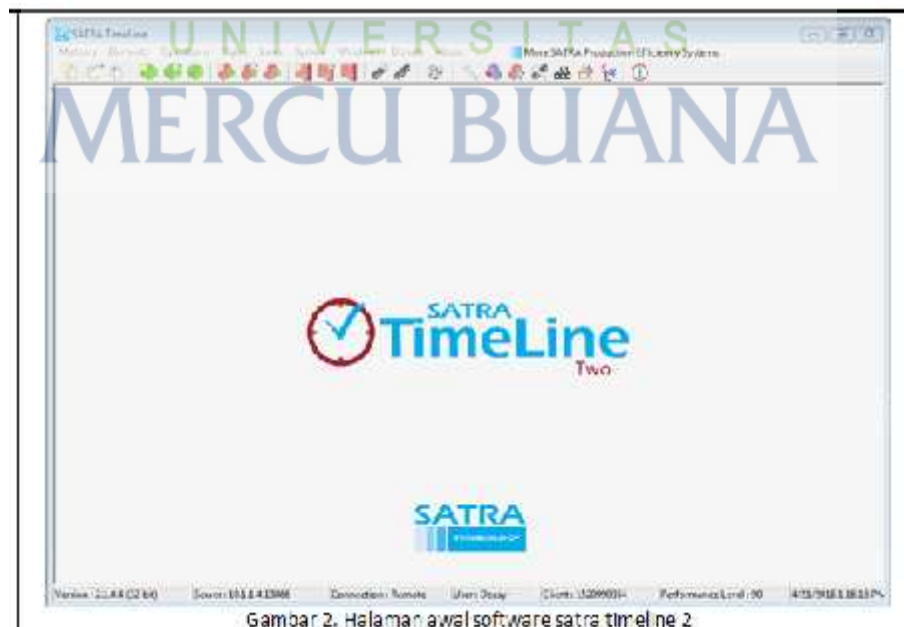
## Lampiran 2 Cara Membuat Operation Procces di Satra Timeline 2, Contoh New Operation Stitching

### 1. Log In

Log in terlebih dahulu ke dalam software satra timeline 2.



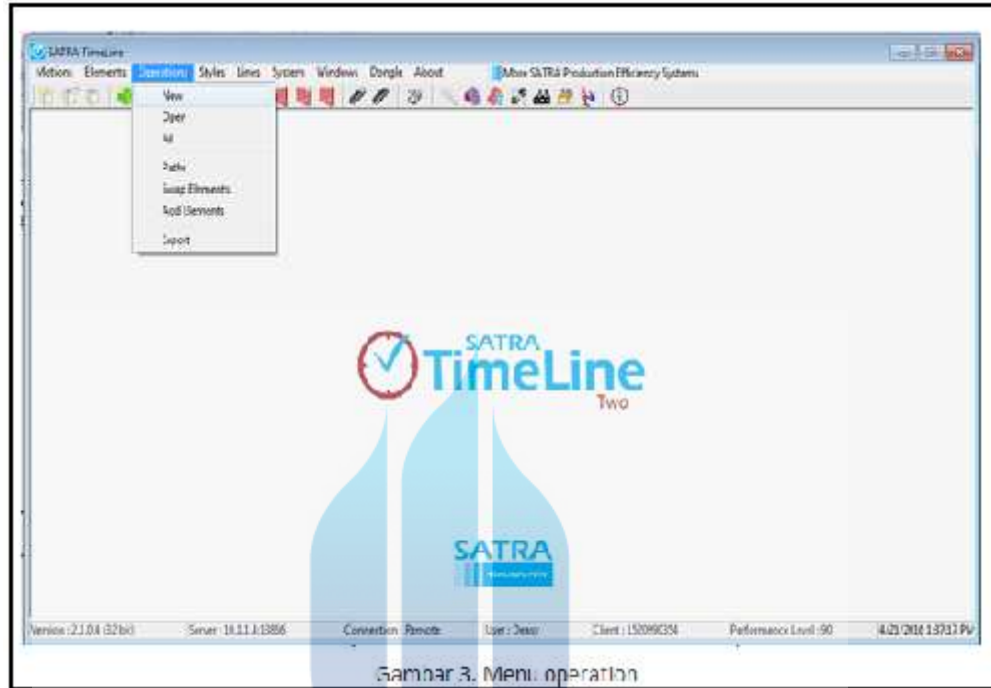
Gambar 1. Log in satra timeline 2



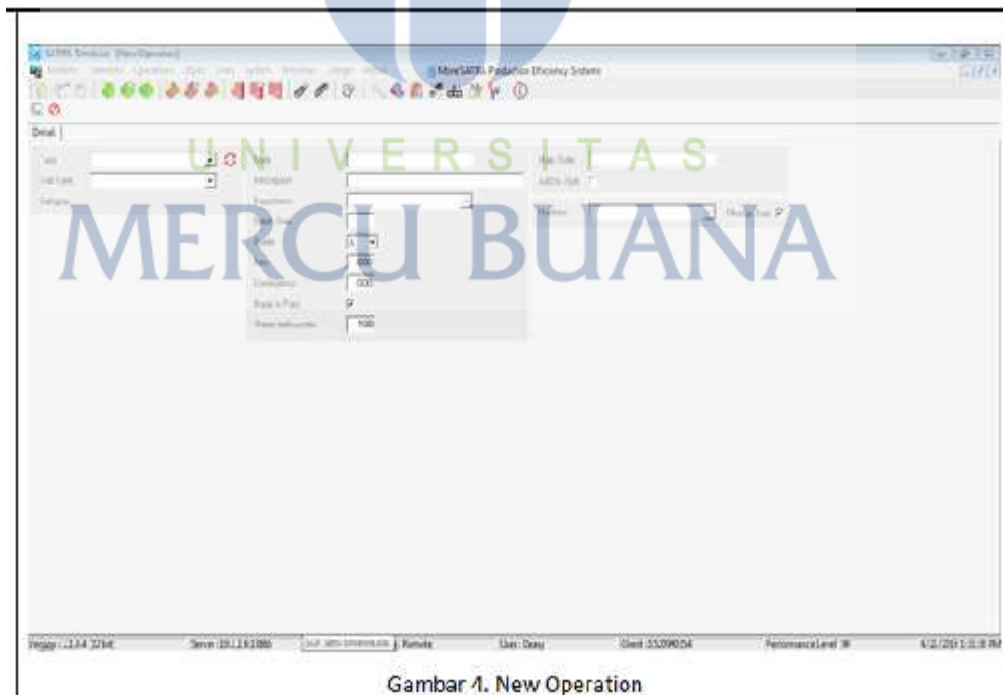
Gambar 2. Halaman awal software satra timeline 2

2. Klik operation, new.

Terdapat beberapa menu di toolbar atas, pilih operation lalu pilih new.

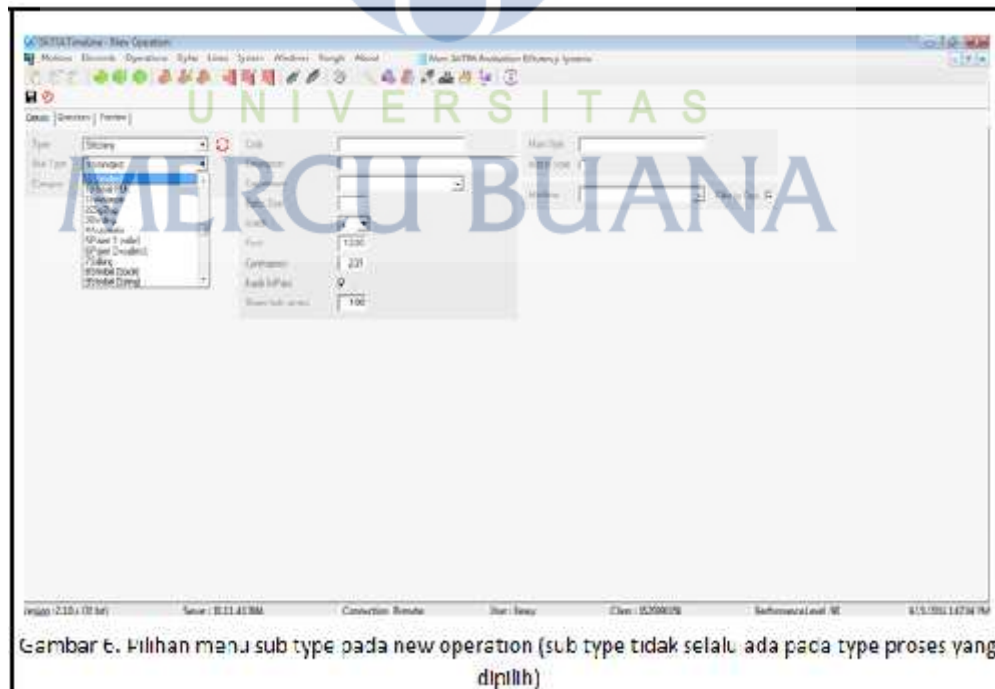
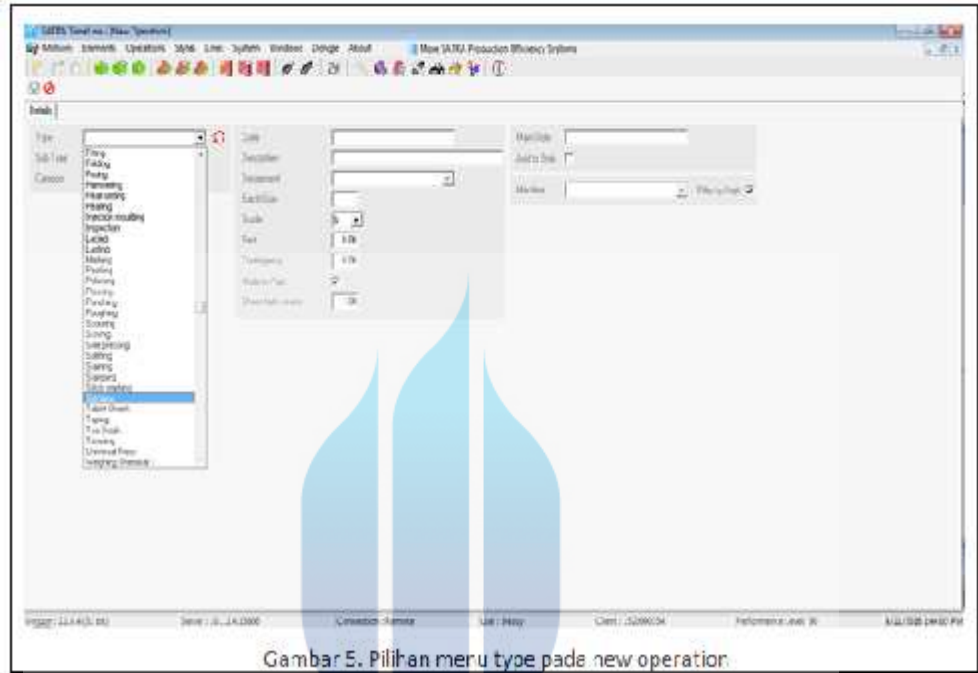


Gambar 3. Menu operation

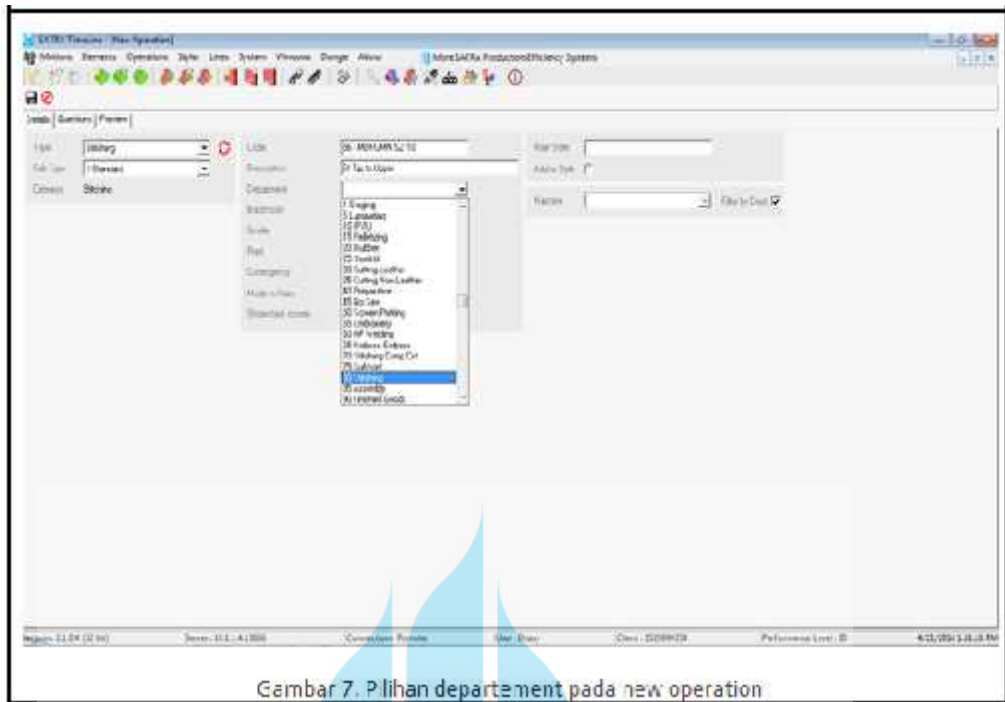


Gambar 4. New Operation

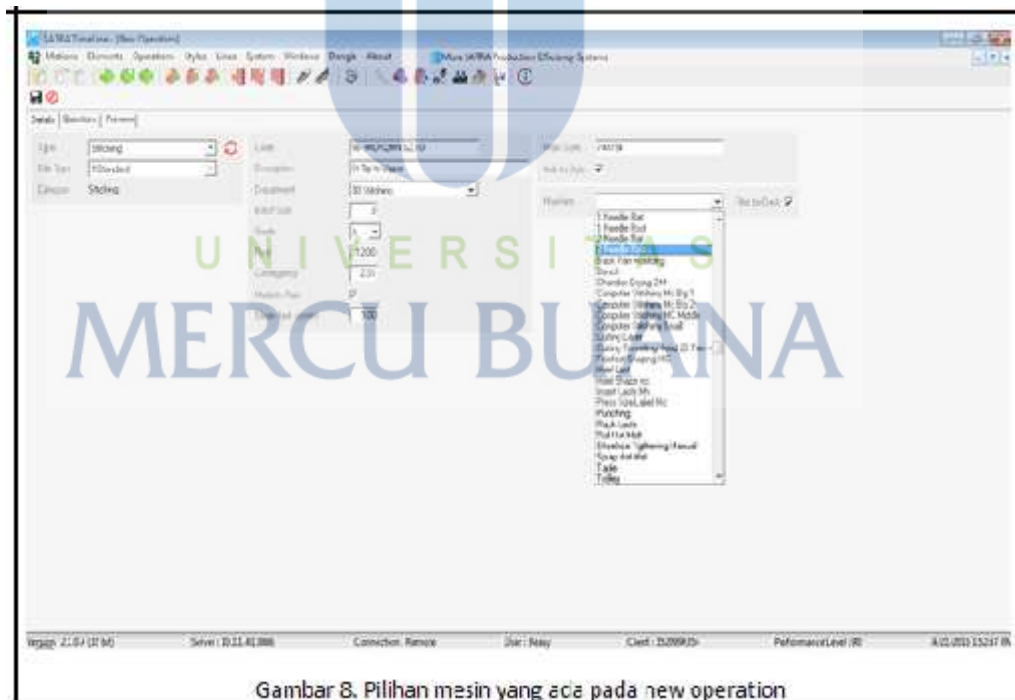
3. Setelah muncul halaman new operation, pilih type dan sub type (proses yang ingin dikerjakan). Kemudian isi code, description, departement, rest, contingency, made in pairs, shoe task cover. Isikan juga main style dan machine yang digunakan.







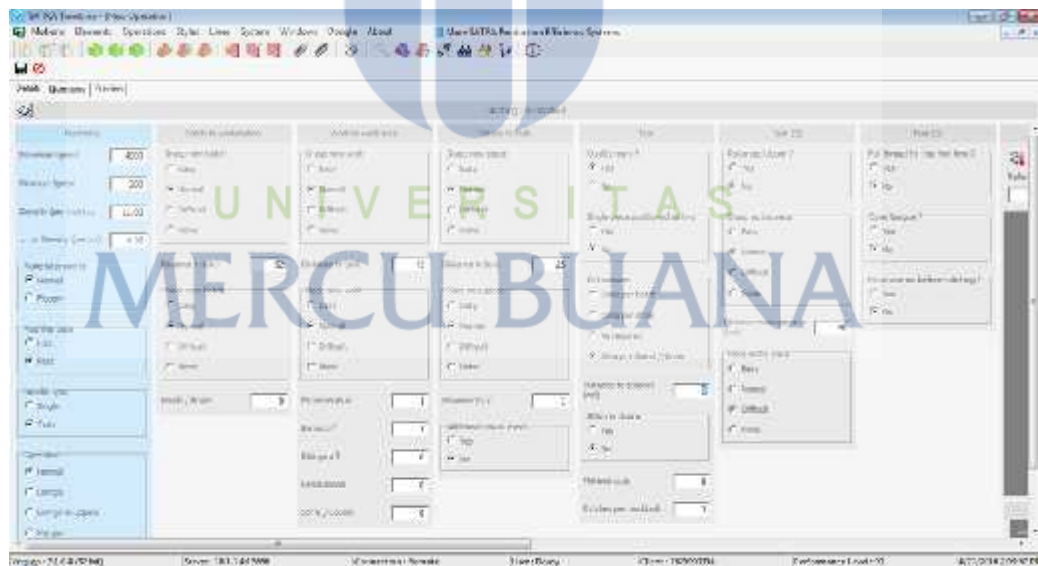
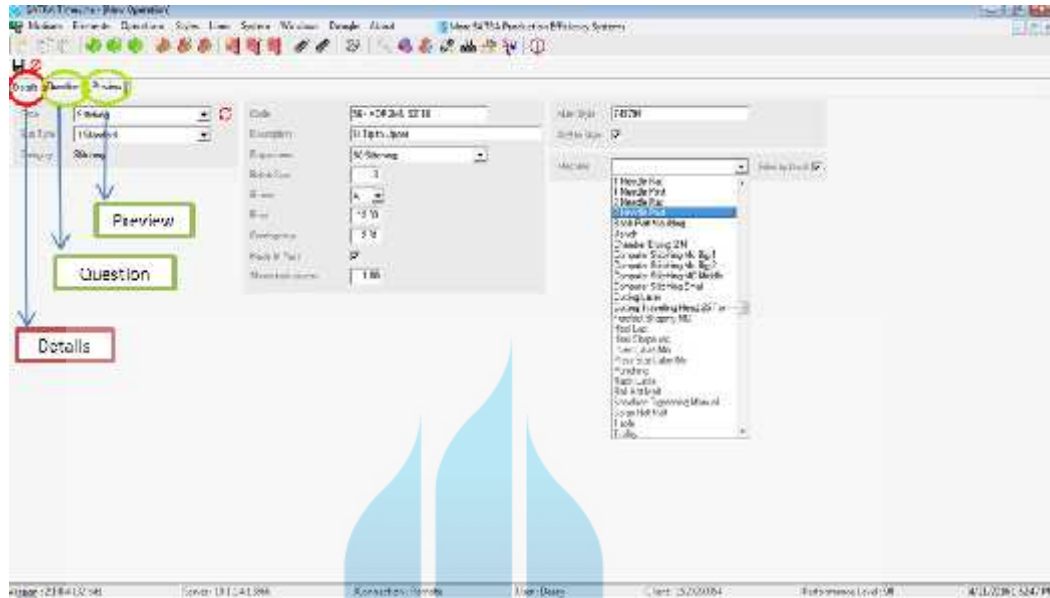
Gambar 7. Pilihan departement pada new operation



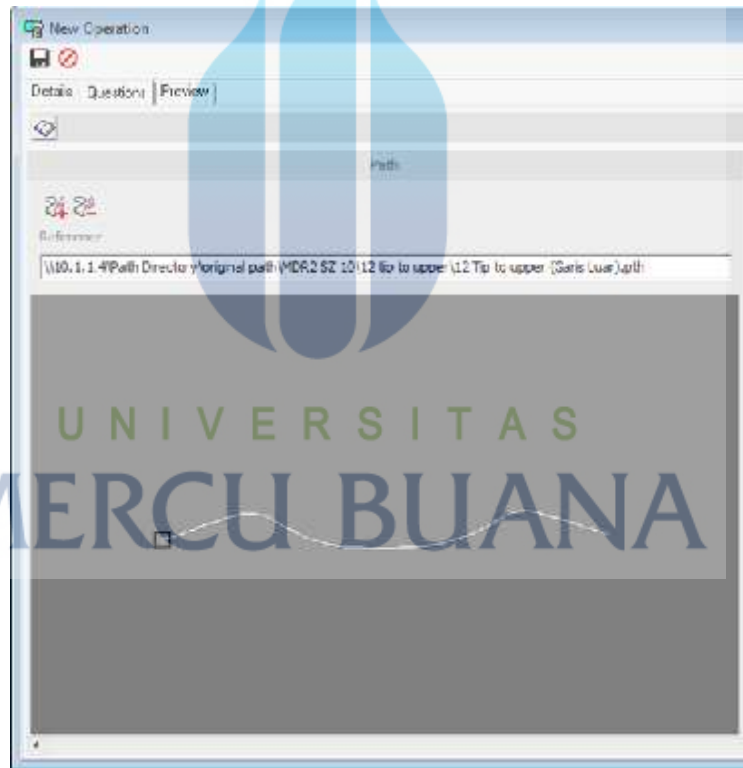
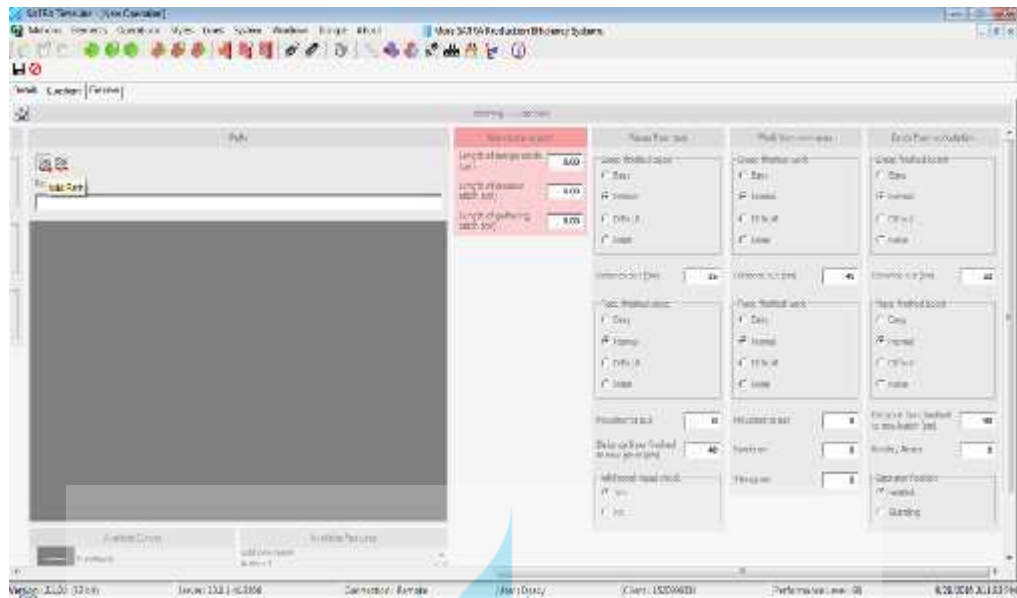
Gambar 8. Pilihan mesin yang ada pada new operation

4. Setelah selesai mengisi semua kolom yang ada pada detail (halaman depan) new operation, selanjutnya klik question untuk menjawab pertanyaan yang ada paa

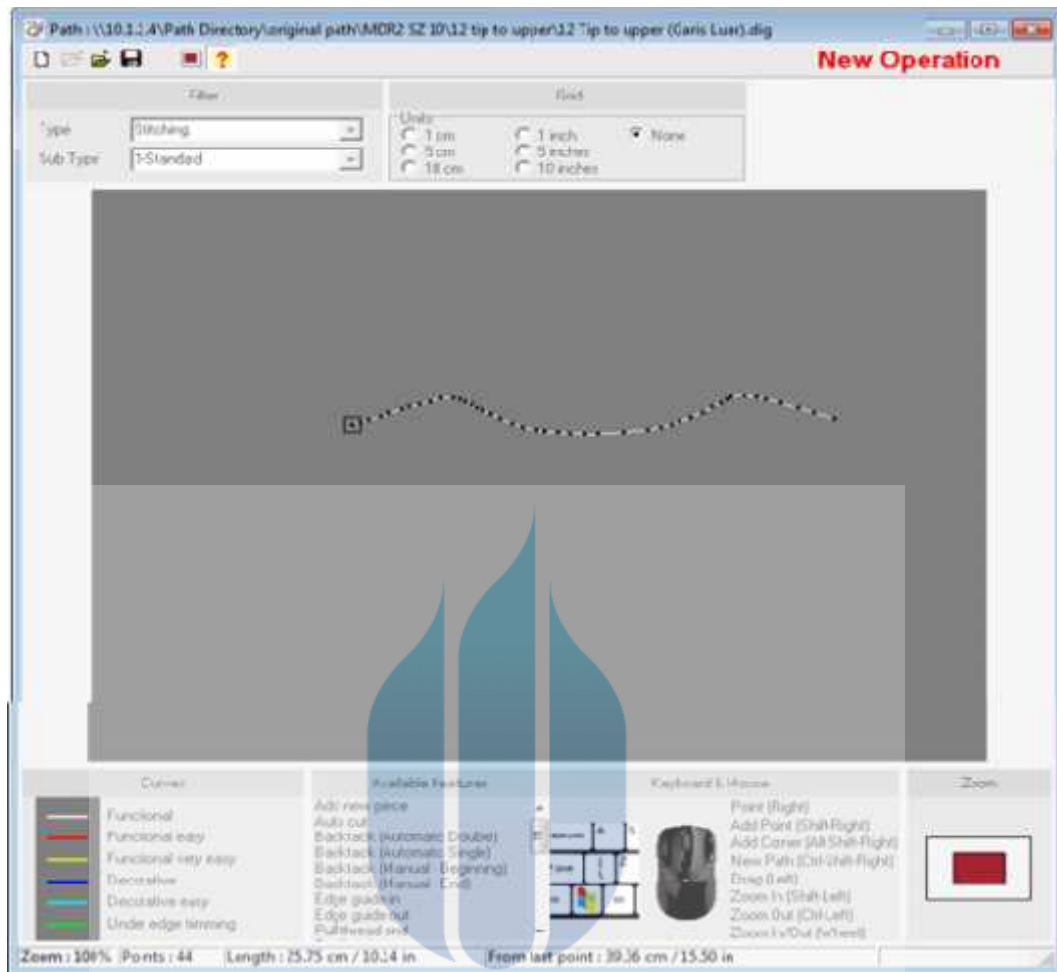
proses yang telah dipilih. Dan preview untuk melihat elemen-elemen atas jawaban dari pertanyaan yang telah diisi. kemudian save.



Klik add path untuk memasukkan pattern. Pilih pattern yang akan dimasukkan dari original path.

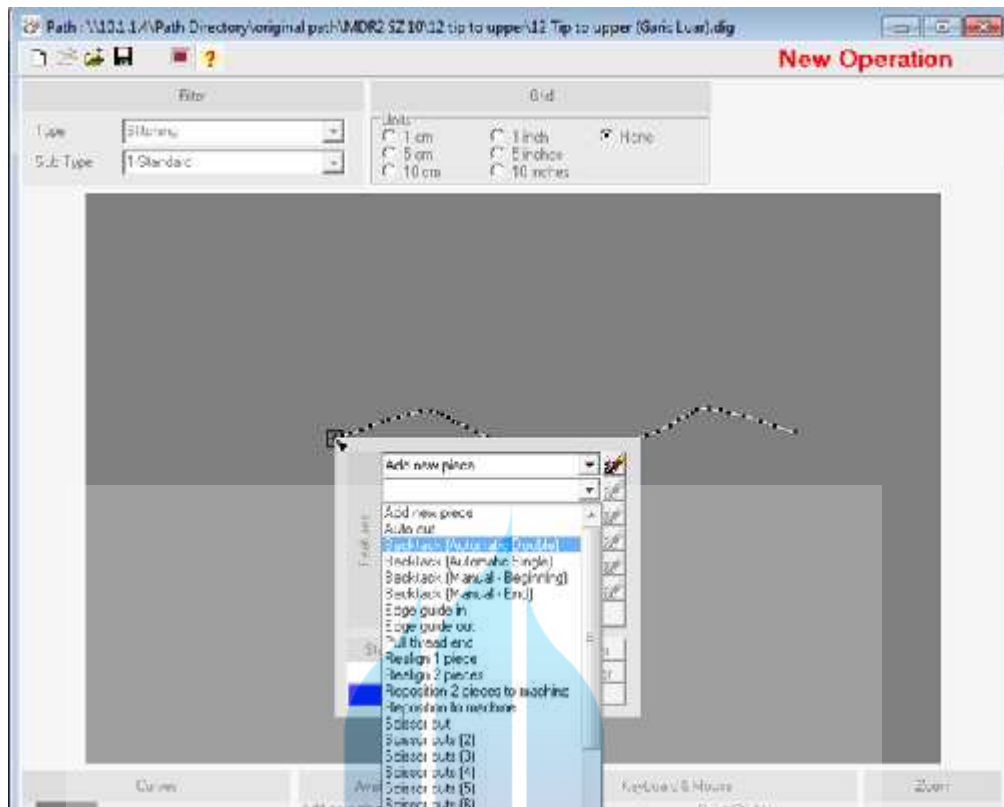


Tampilan path setelah double klik. Pada edit path, disetiap titik-titik path bisa ditambahkan futures. Kegiatan apa yang akan terjadi pada titik tersebut, apakah backtack, auto trim, etc. atau pilihan dari garis yang akan dijahit, apakah normal line, easy, atau very easy.

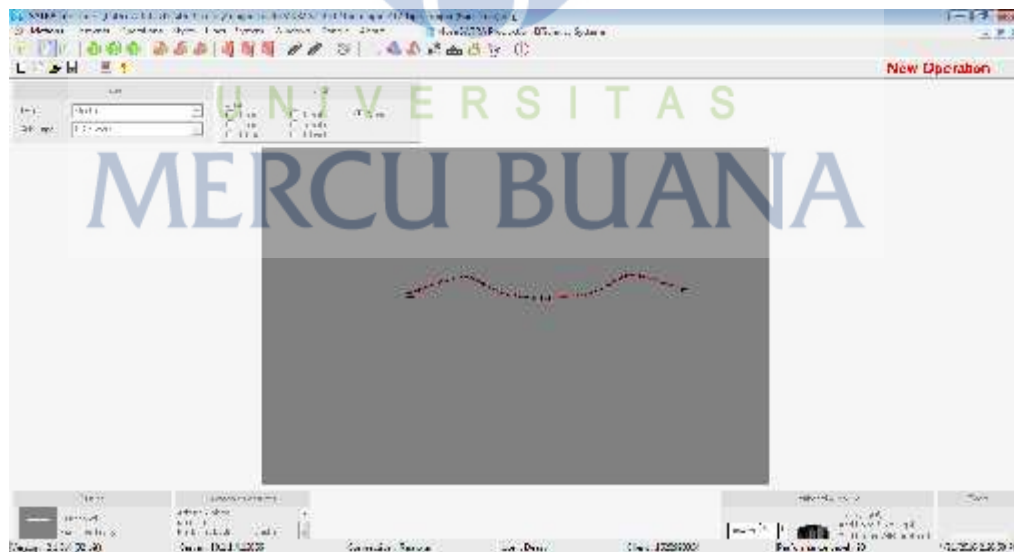


Tampilan edit future path

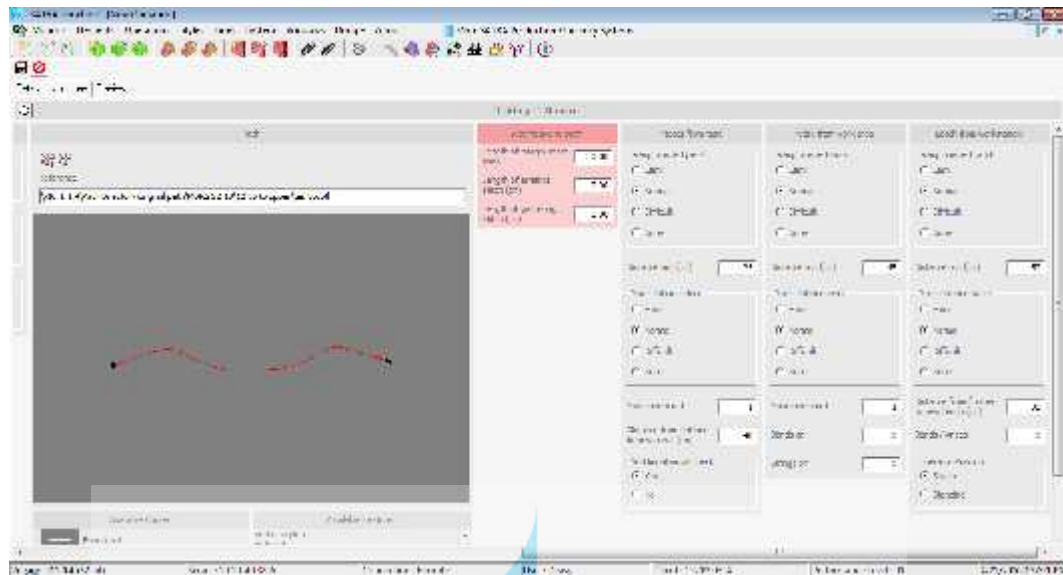
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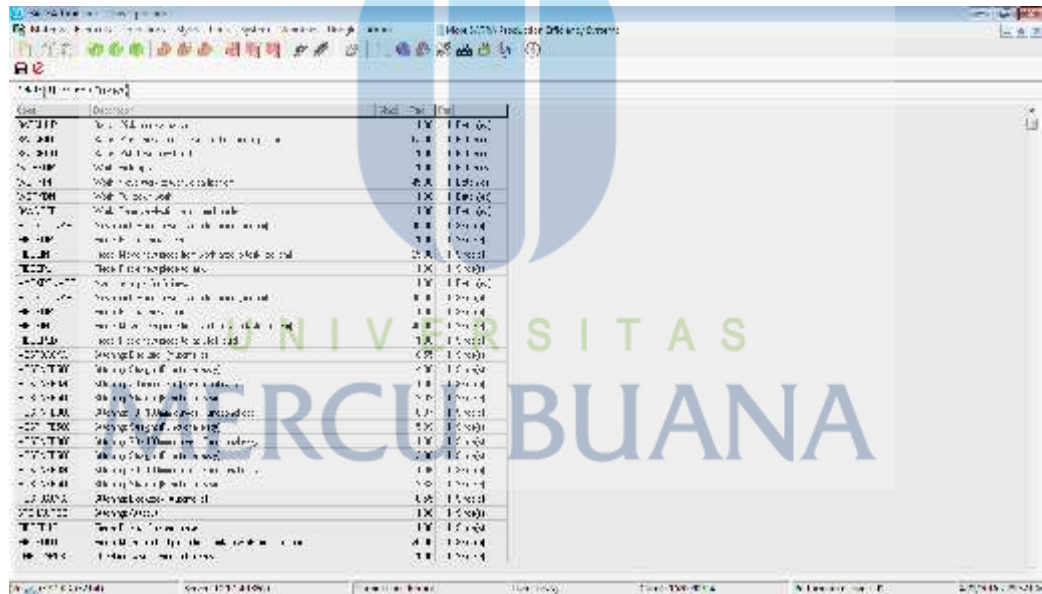
Tampilan edit line path



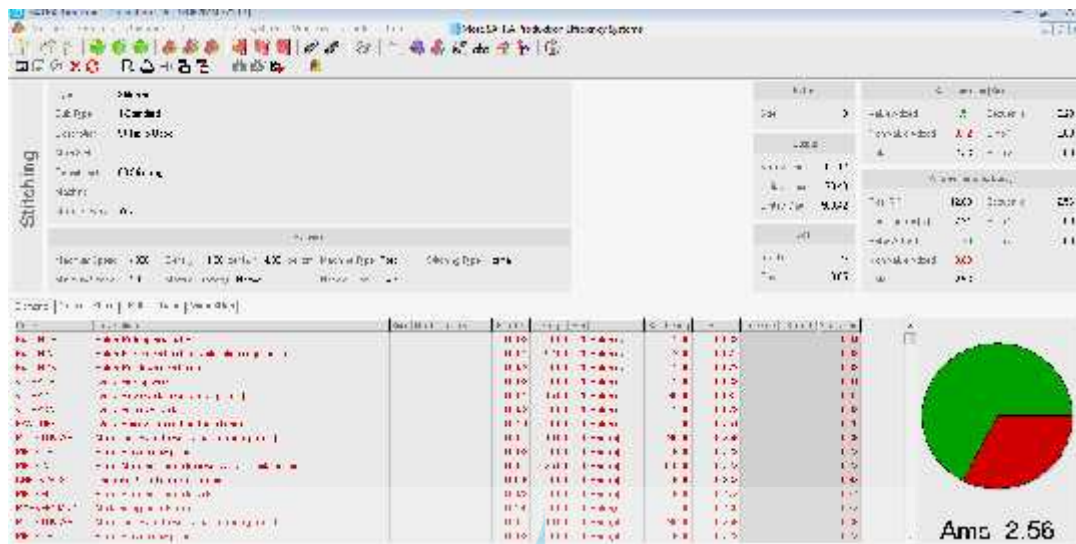
Tampilan setelah penambahan path line jahitan



Tampilan Preview setelah semua question screen terisi



Tampilan hasil new operation setelah di save. Maka dapat dilihat warna hijau berarti gerakan VA dan merah NVA



Pada proses kerja menjahit, maka dilengkapi juga dengan fitur path panjang jahitan dan rekomendasi RPM mesin yang digunakan.





**LAMPIRAN 3 Allowance – Change over observasi (Skiving)**

Quick Change Overtime Check Sheet		Process	Setting Machine	Rotation/Hour	2	QCO Time/Hour	76.35
		Machine Skiving	Rotation/Day	16	QCO Time/Day	1221.6	
NO	Element	Act check time	Preparation	Instalation	Adjusting	Section	
		Element time	Preparation Tools	Cleaning	Release	Install	Position
			Criteria	Test	Operation	Check	Internal
			Others	External			
1	Mengasah Pisau Skiving	61.19	61.19				
2	Mengecek ketebalan hasil skiving dan menyeting	8.44	8.44				
3	Menyeting Stoper pada mesin Skiving	69.63	6.72	6.72			
	1 kali mengasah pisau skiving (2 kali/jam)	76.35	61.19	0.00	8.44	6.72	0.00
	<b>TOTAL</b>		76.35	61.19	0.00	8.44	6.72
				0.00	0.00	0.00	0.00



**LAMPIRAN 4 Allowance – Change over Observasi (Change adhesive roll hot melt)**

Quick Change Overtime Check Sheet		Process Change adhesive		Rotation/Hour	1	QCO Time/Hou	121.66
		Machine Roll Hot Melt		Rotation/Day	8	QCO Time/Day	973.28
NO	Element	Act check time	Preparation	Installation	Adjusting	Check	Section
		Element time	Tools	Release	Criteria	Operation	Internal
			Cleaning	Install	Position	Test	External
			Preparation	Release	Position	Test	Others
1	Membuka tutup lem	43.53	43.53				
2	Mengambil dan memasukkan adhesive	3.51	3.51				
3	Menutup tutup lem	47.04	69.55				
4	Mengatur ketebalan Adhesive	116.59	69.55		5.07		
	TOTAL	121.66	121.66				
	Waktu yang dibutuhkan dalam 1 kali ganti pros	121.66					
	Dalam 1 jam terjadi penambahan adhesive (roll untuk						
	Quarter lining pada model nike shuttle 4)						
	Waktu yang dibutuhkan dalam 1 hari	973.28					
	TOTAL	973.28	43.53	0.00	73.06	0.00	0.00
				0.00	0.00	5.07	0.00
				0.00	0.00	0.00	0.00

**LAMPIRAN 5 Allowance – Change over Observasi (Change thread (stitching))**

Quick Change Overtime Check Sheet											
NO	Element	Act check time	Preparation	Tools	Cleaning	Release	Instalation	Position	Adjusting	QCO Time	
											Machine
1	Get new Thread	2.89								15.57	Internal
2	Join new thread with last thread	2.89								7.785	Internal
3	Pull thread	4.04									Check
4	Insert thread to needle	6.93									Operation
		2.06						2.06			Test
		8.99									Criteria
		6.58							6.58		Others
		15.57									
	TOTAL	15.57	2.89	0.00	0.00	4.04	2.06	0.00	6.58	0.00	0.00

**LAMPIRAN 6 Allowance – Change over Observasi (Change bobin (stitching))**

Quick Change Overtime Check Sheet									
Process		Change Bobin	Rotation/Hour	5	QCO Time	Section			
Machine		P1	Rotation/Day	40	QCO Time/Day	Internal	External	Others	
NO	Element	Act check time	Preparation	Installation	Release	Cleaning	Adjusting	Check	Time/Day
		Element Time	Preparation Tools	Position	Criteria	Test	Operation		
1	Open Sekoci (bobin place)	1.18	1.18						
2	Get last bobin	3.21	3.21		3.21				
3	Put last bobin & get new bobin	4.39			4.52				
4	Insert new bobin to sekoci	6.25			6.25				
5	Close Sekoci	1.28					1.28		
TOTAL		16.44	1.18	0.00	7.73	6.25	1.28	0.00	0.00

**LAMPIRAN 7 Allowance – Change over Observasi (Change needle/broken needle (stitching))**

Quick Change Overtime Check Sheet		Process	Change Needle	Rotation/Hour	~	QCO Time	22.01
NO	Element	Machine	PI	Rotation/Day	1	QCO Time/Day	22.01
		Act check time	Preparation	Installation	Adjusting	Check	Section
		Element time	Preparation Tools	Release	Test	Operation	Internal
			Cleaning	Install	Criteria		External
					Position		Others
1	Loose bolt	2.75	2.75				
2	Get last needle from machine	3.21	3.21				
3	Put last needle & get new needle	5.96		4.52			
4	Insert new needle to machine	10.48					
		5.21		5.21			
		15.69					
5	Insert thread to needle	6.32				6.32	
		22.01					
	TOTAL	22.01	2.75	3.21	4.52	5.21	6.32
					0.00	0.00	0.00
					0.00	0.00	0.00
					0.00	0.00	0.00

## LAMPIRAN 8 Simulasi perhitungan peningkatan target per jam

Daily Target	Unit	Unit time	30.00	Total Processing Time	475.67	Number of Operator	23				
Ready Target	170 pairs	Productivity	2.4733	Line Balancing	95%						
NO	Process	Sec/Pair	% Allowance	GWT	QCO	Standard M/P	Actual M/P	Time/Op	Produce	Behaving Machine	Machine
										(%)	Type
											Quantity
1	1st Temp to Last Temp	14.00	12%	14.40	0.17	14.00	0.41	14.00	243	81.36%	P1
2	1st Temp to 2nd Temp	39.1	12%	42.38	0.17	22.66	1.08	22.66	129	102.29%	P1
3	1st Edge Collar Line	20.1	12%	22.96	0.17	23.44	1.12	23.44	124	112.01%	P1
4	1st Collar Line to Upper	42.4	12%	45.35	0.17	51.33	2.45	51.33	220.40	82%	P1
5	1st Collar to Upper	29.8	12%	31.8	0.17	22.66	1.08	22.66	130.87	100%	P1
6	1st Edge Upper	28	12%	29.4	0.17	22.66	1.08	22.66	157.32	100%	P1
7	1st Collar to Quarter M	37.00	12%	40.32	0.17	42.99	2.05	42.99	145	102.49%	P1
8	1st Temp to 1st to Upper 41 (60 sec)	42.2	12%	45.06	0.17	47.73	2.28	47.73	181.69	91%	P1
9	1st Temp to 1st to Upper 42 (60 sec)	48	12%	50.16	0.17	54.84	2.56	54.84	168.40	100%	P1
10	1st Edge to Upper	44.6	12%	47.55	0.17	50.44	2.41	50.44	224	80.2%	P2
11	1st Temp to Edge	11.11	12%	11.23	0.17	20.11	0.96	20.11	179	99.4%	P2
12	1st Collar to Upper	32.4	12%	34.68	0.17	39.17	1.81	39.17	152.53	94%	P2
	<b>Total</b>			471.66		608.64	27.87	21.87	242.49		11.3

Sumber: Data Perusahaan

### Legend:

1. Total time = Waktu yang dibutuhkan untuk menyelesaikan 1 proses kerja (1600 hourly target)
2. GWT = Gross Working Time, Waktu sec pair-allowance
3. Standard M/P = Kecepatan minipower yang digunakan untuk menyelesaikan target (GWT-QCO) yaitu Total time
4. Actual M/P = Balancing in y manual
5. Avg working time op = Rata-rata waktu kerja operator per proses
6. Balancing % = Perbandingan beban kerja mp per proses (Average working time op / Total time)
7. Line Balancing % = Persentase keseimbangan beban kerja keseluruhan proses ((Total Processing Time (Number of Operator \* Total time)) / Produkivitas kerja proses terbalik (Hourly target / Number of operator))
8. Productivity

## DAFTAR RIWAYAT HIDUP

### I. Data Pribadi

Nama : Deasy Endah Karlina

NIM : 55315110001

Tempat & Tgl. Lahir : Jakarta, 07 September 1991

Jenis Kelamin : Perempuan

Agama : Islam

Alamat Rumah : Jl. Swadaya Pabuaran Timur No. 59 Rt 04.002  
Pd. Karya Pd. Aren Tangerang Selatan 15225

Telp./HP/Faks. : 085692611294

Alamat e-mail : deasy.endah@yahoo.com

### II. Riwayat Pendidikan

#### a. Pendidikan Formal

2013 – 2015 : Program Sarjana (S1) Teknik Industri Universitas

Mercu Buana, Jakarta

2009 – 2012 : Program Diploma (D3) Teknik Elektro Politeknik Negeri  
Jakarta

2006 – 2009 : SMAN 87 Jakarta

2003 – 2006 : SMPN 19 Jakarta

1997 – 2003 : SDN 19 Kebayoran Lama Jakarta Selatan

#### b. Pendidikan Non Formal / Pelatihan

2016 : Supply Chain Management (For Beginner)

Universitas Mercu Buana, Jakarta

2016 : Entrepreneurship – Universitas Mercu Buana, Jakarta

- 2016 : Operational Excellence For Business Competitiveness  
Universitas Mercu Buana, Jakarta
- 2016 : Six Sigma (Basic) – Universitas Mercu Buana, Jakarta
- 2015 : Value Stream Mapping – Universitas Mercu Buana
- 2015 : *Predetermined Motion Time System (PMTS) for Shoes Manufacturing using Satra Timeline 2*
- 2012 : PLC & HMI using Scada Simulation software
- 2012 : Micro Controller and Robot Line Follower

### III. Pengalaman Bekerja

- 2016 – sekarang : Industrial Engineering (PMTS Specialist, Costing Framework Analyzer) PT. Pratama Abadi Industri
- 2015 – 2016 : Industrial Engineering PT. Adis Dimension Footwear
- 2015 : Freelance of Event Organizer Asia PR for Socialization programs of Law no. 6/ 2014 / Village constitution.(An collaboration projects among Coordinator Ministry of human resources , Ministry of Home Affairs and Australian DFAT)
- 2014-2015 : Workflow Administration at PT. Kirana Prima Abadi
- 2013 – 2014 : Surveyor at PT. Surveyor Indonesia (Persero)

### IV. Pengalaman Organisasi

- 2010 : Panitia lomba robot dan plc se Indonesia – E-TIME PNJ
- 2009 – 2010 : Himpunan Mahasiswa Elektro PNJ
- 2007 – 2008 : Ketua Paskibra SMAN 87 Jakarta
- 2005 – 2006 : Wakil Ketua Paskibra SMPN 19 Jakarta