

**INDUSTRIAL PRACTICE REPORT
PT. HADIPUTRA GEMILANG**



**BILLA OKTINA TRINUGRAHENI
15 14 08568**

**INDUSTRIAL ENGINEERING PROGRAM
FACULTY OF INDUSTRIAL TECHNOLOGY
UNIVERSITAS ATMA JAYA YOGYAKARTA
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APPROVAL

The internship report which is written based on the Industrial Practice at PT.Hadiputra Gemilang (Tangerang) during the period at December 18, 2017 to January 23, 2018 by:

Name : Billa Oktina Trinugraheni
Student ID : 15 14 08568
Major : International Industrial Engineering
Faculty : Industrial Technology

has been approved.

On site Supervisor



Susanto Wongso

Yogyakarta,
Faculty Supervisor



Ir. Bernadus Kristyanto, M.Eng., Ph.D.



PT. HADIPUTRA GEMILANG

MANUFACTURER - GARMENT - BATIK • EXPORTER - IMPORTER • GENERAL TRADE

Office : Jl. Melawan No. 26/5 Phone : 6019172, 6493105

Fax : 62-21-6019184 Jakarta Pusat - Indonesia

Factory : Jl. Raya Serang Km.22 Industri Phone : 5962179, 59404108

Fax : 5962179. Tangerang - Indonesia

SURAT KETERANGAN

Nomor : 002 / I / HPG / 2018

Yang bertanda tangan dibawah ini menerangkan bahwa :

Nama : Billa Oktina Trinugraheni
NPM : 151408568
Program Studi : Teknik Industri Kelas Internasional
Institusi : Universitas Atma Jaya Yogyakarta

Telah melaksanakan Kerja Praktek (KP) di perusahaan kami, PT.Hadiputra Gemilang yang bergerak dalam bidang Industri Tekstil selama 1 (satu) bulan terhitung mulai 18 Desember 2017 sampai 23 Januari 2018 dengan predikat cukup/baik/memuaskan. Lembar penilaian terlampir.

Demikian surat keterangan ini dibuat dengan sebenarnya dan dapat dipergunakan sebagaimana mestinya.

Jakarta, 23 Januari 2018

Hormat kami,



Ir. Sufendra Suhadi

Direktur

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CHAPTER 1

INTRODUCTION

This chapter will focus on introduction which consist of background, objective, industrial practice location and schedule.

1.1. Background of Industrial practice

Department of Industrial Engineering, Universitas Atma Jaya Yogyakarta (PSTI UAJY) defines the industrial practice as a simulator that enables the students not only to apply the Industrial Engineering knowledge into real-world industry but also to train the student how to be a professional of Industrial Engineer. For this purpose, during the industrial practice the students are requested to work in the host company for a period of one month.

The students should keep in their mind, that the paradigm of industrial practice is that the students are expected to experience the application of Industrial Engineering knowledge in practice in which it can be obtained if during their industrial practice the students do some activities to enhance their understanding in term of planning, designing, improving, implementing and problem solving. Therefore during the industrial practice periods the students are requested to:

- a. Doing all the tasks that have been assigned by the host company
- b. Following all of relevant working procedures of the host company
- c. Capturing the big picture of the enterprise system in the host company and observing its characteristics

Since Industrial Engineer is dealing with the integrated system of some elements which are Man, Machine, Material, Methods, Money, Energy, Environment and Information, therefore during the industrial practice the students should relate all of their activities in term of system perspective. Based on the explanation above, it is clearly seen that industrial practice is not only gathering the data.

According to the Curriculum Document of PSTI UAJY, industrial practice is an academic course in which the students should register for the course for 2 credits. Then, in order to fulfill the academic requirement of industrial practice, the students are required to submit an industrial practice report. The performance of the student itself is evaluated both by on-site supervisor and by faculty supervisor.

1.2. Objective of Industrial practice

The aims of the industrial practice are:

- a. Practice discipline
- b. Improve the interaction between student and his/her ordinate or workmate
- c. Practice adaptability in the working atmosphere
- d. Observe the daily work in the host company
- e. Enhance the Industrial Engineering knowledge in practice by seeing the practical work in the host company
- f. Enhance the knowledge of enterprise system

1.3. Industrial practice Location and Schedule

The industrial practice was held in PT. Hadiputra Gemilang which located in Raya Serang Street Number 9, KM 22, Balaraja, Tangerang-Banten. The industrial practice duration started from December 18, 2017 until January 23, 2018. During the interenship, student has opportunity to know about the company and started to discuss the project that should be done, observe and work on the project. It started with idea proposed, implement in the line, then observe again as the evaluation. The idea that accepted but still not implement yet become suggestion for company. At the last, every works should be submitted and presented.

CHAPTER 2

COMPANY BACKGROUND

This chapter will explain about the company profile, organization structure, and company management.

2.1. A Brief History of The Company

2.1.1. Establishment History and the Development of the Company

In the late 1970 Founding Father of PT. Hadiputra Gemilang started Print Batik business with only Manual Print, which were produced by some "Pembatik Local" in Sentra Batik at Karet Area, South Jakarta. At that time, they still worked at home. Now they have a modern factory in Balajara, Serang-Banten. The name of "Hadiputra" itself being used since 1990's. At the time, Suhendra Suhadi who born on 1965, was fresh graduate from Industrial Bachelor of Tarumanegara University. He tried to work on other people's company, then finally he decided to manage Batik's Manufacturer owned by his family.

They sold their Finished Print Batik as Ladies Dress and others at Pasar Tanah Abang, Jakarta for local customers. In middle 1980's many International buyers came to Tanah Abang and they started bought our products. They sold their "Print Batik" at their countries such as Saudi Arabia, Egypt, United Arab Emirate etc. their International buyers satisfied with their Batik quality and designs, and their buyers came again and bought PT. Hadiputra Gemilang products. Then, the story of their Batik Kraton Mas begins.

In 1991 Founding Father of this company established PT. Hadiputra Gemilang as an institution/company, so they can do manage their export transaction easily. And, some years later they had marketed and totally exported their products to many nations. In 1995 the company has improved its machineries by changing old machineries with the new modern printing machines for production process. With this new machineries now they can produce their products with New Batik Patterns, more fashion and colors known as Modern Batik and Textile patterns.

Their Creative Designers continuously develop their owned design and they also accept specified Batik designs which are requested by their customers and international market. The company steadily increase production capacity and

various products from Viscose rayon materials to Rayon Batik garment. They have their own Brand “Kraton Mas”, which is quite famous in the Middle East and And African countries. The brand can be found at their Ladies Dress products Sarong Batik Print and Premium Products. On the other side, this company also produce products for contract manufacturing, so their buyer can sold Batik that produced from PT. Hadiputra Gemilang and change the brand with their buyer’s brand.

Currently, Hadiputra has around 450 employees on office and manufacturer also around 550 employees in all CMT to accomplish their selling and production capacity so total employee for PT. Hadiputra Gemilang is around 1000 employees. The CMT (Cut-Make-Trim) service in here is come from the people who live around Hadiputra Manufacturer to do the cutting process, sewing process, and folding & packaging process becoming finished goods.

2.1.2. Location and Relocation of the Company

PT. Hadiputra Gemilang area is including the main office in Karet, the manufacturing floor in Balaraja, Tangerang, KM 22, and the warehouse in Balaraja, Tangerang, KM 21. The manufacturing floor is located in Industrial Building Area. Beside that, PT. Hadiputra Gemilang also considering some factors such as :

a. Transportation

The location of PT. Hadiputra Gemilang is quite reacheable with public transportation and personal transportation like car, motorcycle and local transportation, so it makes the delivery process become easier.

b. Raw Materials

The raw materials used from many kind such as the grey fabric, the color/ ink, the chemical material, and the others came from so many suppliers such as PT. Sri Rejeki Isman, PT. Agung Tex, PT. Dunia Tex, PT. Samitex, Multikimia, Kerang Sakti, Colour Indo, Teratai Mas, Dwi Mitra, Mitra Kimia Mas, Chemstar, Sincu, etc.

c. Society/ Environment

This manufacturer is located in the Industrial area and open job field to the people around the factory/ manufacturer. This company also allowed one mini cafeteria owned by people around their factory to open inside their factory area. Beside that, PT. Hadiputra Gemilang also consider environment aspects by providing waste (water) recycling to prevent water pollution and bad effect to the environment.

d. Market

Until now, PT. Hadiputra Gemilang only export their products to International market, they don't have intention yet to sell their products in Indonesia (with another design of clothes and different size).

2.1.3. Achievement of The Company

Even though PT. Hadiputra Gemilang not yet apply the ISO Standard for the company management, this company already has earned several awards that indicate that this company can be viewed as an outstanding company. Below are some achievements obtained by the company :



Figure 2.1. Awards of “*Penghargaan Pengusaha Indonesia Puri Cikeas Terbaik 2008*”

This awards is obtained by participation of Industri National Textile-Garment by Mr. Soesilo Bambang Yudhoyono (The 6th President of Republic of Indonesia).



Awards of “Primaniyarta Indonesia Export Award”

This award is given in 2012 for Hadiputra Gemilang for category greatest small and medium enterprises that do highest amount of export in textile-garment field. by Gita Irawan Wirjawan (Minister of Trade of Republic of Indonesia).

2.2. Organizational Structure

There are three places that divide those departments which are the main office, in the warehouse and in the manufacturing floor. They have several departments to supports these company to be running well. The main office in Karet consist of accounting department, marketing department, and planning department. While in the warehouse there are only export department and warehouse department. On the other side, in the manufacturing floor consist of production and planning department (Planning, Printing and Production Processes, Design Tracer, Trace Color Match Laboratorium), administration department, and Finishing Department (Cutting, CMT, Folding, Packaging). The production system is not fully automated, they have many operators to do the job. Student placed in Fisihing Department. The student placed is focus on finishing batik garment and take inspection from many types of products. Student’s mentor is positioned as the second manufacturer manager, while student’s supervisor is positioned as the Head of Maunufacturer Manager. Both of them are placed in the manufacturer site. Main

focused of this team are improvement on the production manufacturing floor and export floor. The organizational structure is shown in figure 2.3.



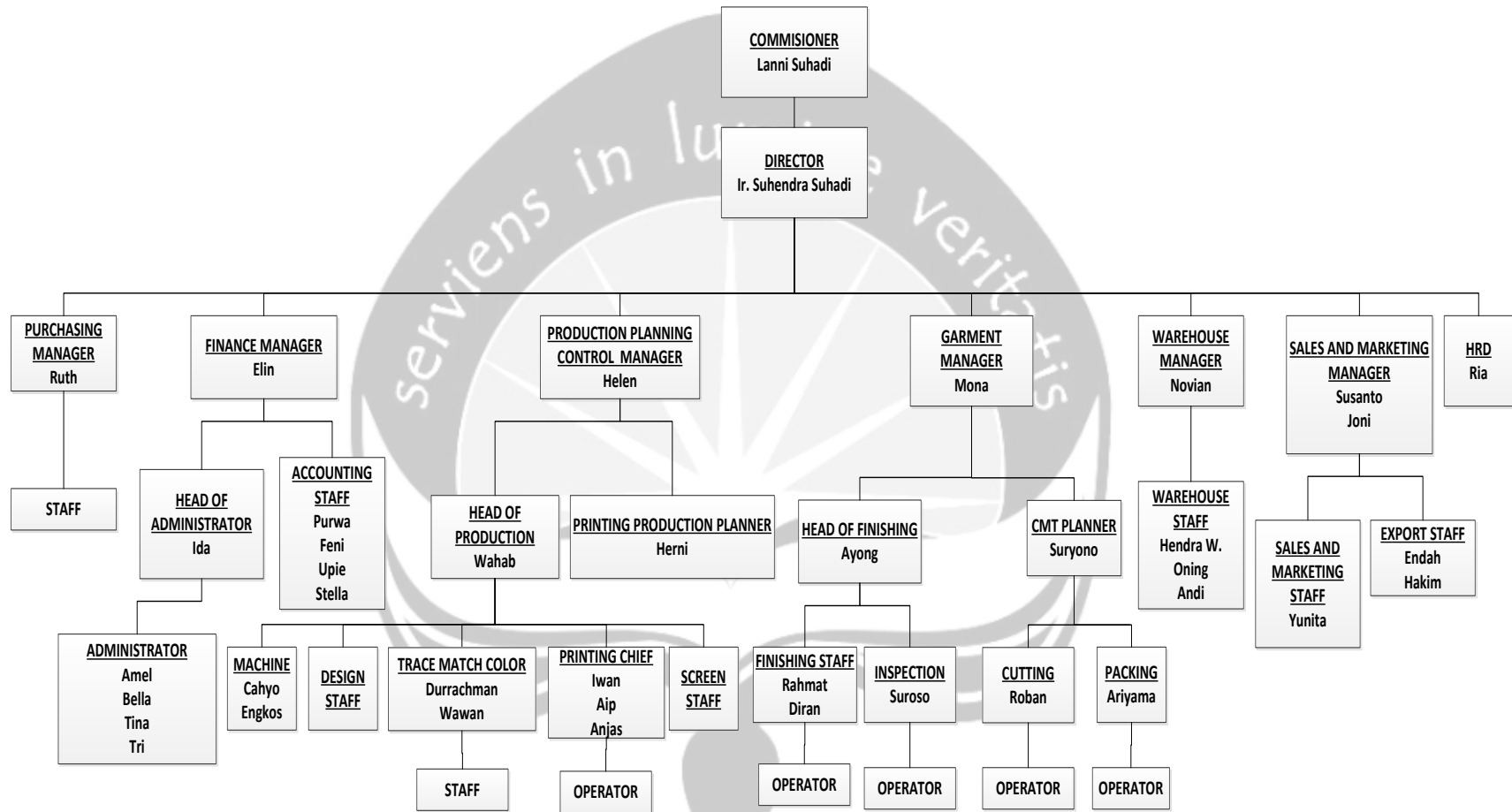


Figure 2.3. Organizational Structure of PT. Hadiputra Gemilang

Every position in the organizational structure in Figure 2.1. has different role. Below are the description of each position :

a. Commissioner

Role:

- i. Control and give instruction about the company towards the director.
- ii. Make company terms and company big plan.
- iii. Evaluate and appraise the performance of the company made by the director.
- iv. Control and evaluate the implementation of approved working plan.
- v. Appraise the director.
- vi. Make rules and terms with the director to make the company become more effective and efficient.
- vii. Evaluate the implementation of company basic budget.

Authority:

- i. Fired and hire the director.
- ii. Evaluate the approval request about certain transaction according to the terms of company basic budget made by the director.
- iii. Make a decision during or out the meeting of commisaris.

b. Director

Role:

- i. Communicate and implement terms and condition of the company.
- ii. Determine the vision and mision of the company and harmonize the activity of the company according to that vision and mission.
- iii. Evaluate the working performance of all managers and give an instruction and correction to all the managers if it's needed.
- iv. Lead all of the company operational activity and evaluate the development of company condition periodically and followed by revised action needed.
- v. Make final decision for the company according to the condition faced by the company every day.

Authority:

- i. Hire and fired the managers.
- ii. Authorize certain things and plan made by the managers.
- iii. Doing transaction according according to terms of company basic budget.

c. Purchasing Manager

Role:

- i. Review all the demand order comes from warehouse department that has been approved by the Head of Finishing Department (warehouse).
- ii. Search for vendor or raw material supplier with profitable price and good quality of material that meets company standard/ spesification.
- iii. Evaluate reports from supplier or vendor.
- iv. Keep checking the raw material price in the markets and update the report about that price.

Authority:

- i. Authorize purchase demand that comes in.
- ii. Doing transaction with vendor according to the terms of Company company basic budget.

d. Finance Manager

Role:

- i. Make a plan, coordination, and control the cash flow of the company.
- ii. Arrange and organize company company basic budget, also control cash in and out.
- iii. Review accounting report and bank reconciliation.
- iv. Checking the Payment Proof and treasury/ Bank Receivable report and other supporting documents.
- v. Responsible about bills, loans, and investation
- vi. Checking tax payment of the company

Authority:

- i. Evaluate the making of invoice or bills, tax invoice, also billing and account receivable.
- ii. Evaluate things attached to the cash disbursement, such as purchasing raw materials and repairing machine that has been authorized by the purchasing manager and the director.
- iii. Authorize particular things such as authorization of big amount of spending of cash disbursement.

e. Production Manager

Role:

- i. Making production plan, even planning for manufacturer field according to the terms and conditions that has been approved by the director.

- ii. Monitoring manufacturing production floor and CMT production periodically followed by some improvements on those quality.
- iii. Checking machine performance periodically.

Authority :

- i. Evaluate production policies such as overtime working hour, laborers working schedule, weekly or monthly production capacity, etc.
- ii. Authorize particular things such as purchasing of raw materials in big amount, repairing on broken machine, or decision on buying new machine to replace the broken machine.

f. Warehouse Manager

Role :

- i. Making inventory report in warehouse periodically
- ii. Receiving purchased raw material and checking the quality and quantity of the material according to the Purchase Order (PO)
- iii. Making sure the raw material is being kept and handled well.
- iv. Guarantee the availability of the raw material.

Authority:

- i. Requesting raw material purchase order
- ii. Rejecting raw material from supplier if it doesn't fit with the quantity or desired spesification of the company.

g. Sales and Marketing Manager

Role:

- i. Lead the sales and marketing team
- ii. Make a good relationship with the customer and give feedback from customer's advice and critics to the company.
- iii. Evaluate customer order based on historical customer data.
- iv. Make basic selling terms for short-term period, medium period, and long-term period.
- v. Searching for new customer.

Authority:

- i. Authorize new customer order.
- ii. Doing transaction with the customer according to the company basic budget terms.

h. Garment Manager

Role:

- i. Lead the finishing team and CMT (Cut, Make, Trim) department.
- ii. Monitoring manufacturing production floor and CMT production periodically followed by some improvements on those quality.
- iii. Make sure the material is available to be transferred to CMT department.

Authority:

- i. Evaluate finishing and CMT planning policies such as overtime working hour, laborers working schedule, weekly or monthly production capacity, etc.
- ii. Evaluate the performance of each CMT.

i. HRD

Role:

- i. Monitoring attendance presences of all employees.
- ii. Give attendance report toward the supervisor/ head of managers.
- iii. Take care of permission things.
- iv. Giving final working hour and working schedule for each laborers.
- v. Help to input data stock in/out of CMT.

Authority:

- iii. Can not receive the permission if the reason is unclear.
- iv. Rejecting to give salary bonus toward laborers if they don't do the overtime job/ reach their target.

2.3. Management of the Company

2.3.1. Vision and Mission of the Company

a. Company Vision:

To Be The Biggest "Batik Print Exporter" To Middle East Countries with High Quality Products and Affordable Price.

b. Company Mission:

To Continously Produce the Highest Standards Products with Beautiful Designs and Colours and by Using High Quality Materials. These are the PT. Hadiputra Gemilang Way:

- i. Make a garment products with various pattern and innovative Batik design according to world fashion trend and buyers specific qualification/ demand.
- ii. Focus to export products to Middle East market with "Batik Kraton Mas" private label.

- iii. Choose the highly skill importer expertise in Garment Field.
- iv. Make garment products with various colors, models, and high quality according to the buyer's specific order.

2.3.2. Salary and Allowance System in the Company

Salary system at PT. Hadiputra Gemilang is divided into 2 namely: monthly and Weekly. The monthly salary is a payment to the official Staff and Managers), while the weekly salary is a payment to the operators/ laborers daily, on the basis of "no work no pay". In providing salary to employees, this company refers to Regional Minimum Wages Standard (UMR) Tangerang & Jakarta District, but the salary of each person can be different based on each individual capability and how long they work for the company. Company also provide facilities in the form of allowances for employees as a form of commitment PT. And Liris towards improving employee welfare with the aim to improve the spirit and work ethic of the people employees. The facilities provided by the company include:

- a. Social security of the workforce is Health Insurance
- b. Special Allowance (THR).
- c. Sickness allowance if there is work accident

2.3.3. Working Hour and Operation of the Company

- a. Office Department (in Karet)

Table 2.1. Working Hour and Operation of the Office Department (in Karet)

Working Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Working Hour	8 a.m. – 5 p.m.	8 a.m. – 5 p.m.	8 a.m. – 5 p.m.	8 a.m. – 5 p.m.	8 a.m. – 5 p.m.	8 a.m. – 2 p.m.
Break	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.
Notes	-	-	-	-	-	-

- b. Official Staff of the factory/ manufacturer and Warehouse (Admin, Head of each Departments, Factory Managers)

**Table 2.2. Working Hour and Operation of Official Staff of the factory/
manufacturer and Warehouse**

Working Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Working Hour	7 a.m. – 5 p.m.	7 a.m. – 5 p.m.	7 a.m. – 5 p.m.	7 a.m. – 5 p.m.	7 a.m. – 5 p.m.	7 a.m. – 4.30 p.m.
Break	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.
Notes	-	-	-	-	-	-

c. Laborant and Production Operators

Table 2.3. Working Hour and Operation of the Laborers and Production Operators

Working Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Shift 1	Working Hour	7 a.m. – 4.30 p.m.	7 a.m. – 4.30 p.m.	7 a.m. – 4.30 p.m.	7 a.m. – 4.30 p.m.	7 a.m. – 4 p.m.
	Break	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.	12 p.m. – 1 p.m.
	Notes	-	-	-	-	-
Shift 2	Working Hour	4 p.m. – 12 a.m.	4 p.m. – 12 a.m.	4 p.m. – 12 a.m.	4 p.m. – 12 a.m.	4 p.m. – 11.30 p.m.
	Break	6 p.m. – 8 p.m.	6 p.m. – 8 p.m.	6 p.m. – 8 p.m.	6 p.m. – 8 p.m.	6 p.m. – 8 p.m.
	Notes	Only production operator	Only production operator	Only production operator	Only production operator	Only production operator
Shift 3	Working Hour	12 a.m. – 7 a.m.	12 a.m. – 7 a.m.	12 a.m. – 7 a.m.	12 a.m. – 7 a.m.	11.30 p.m. – 6.30 a.m.
	Break	2 a.m. – 4 a.m.	2 a.m. – 4 a.m.	2 a.m. – 4 a.m.	2 a.m. – 4 a.m.	2 a.m. – 4 a.m.
	Notes	Conditional, Only production operator	Conditional, Only production operator	Conditional, Only production operator	Conditional, Only production operator	Conditional, Only production operator

2.3.4. Marketing Strategy of the Company

Mr. Hendra directly targeted his products to be exported in International Market, especially Middle East (Saudi Arabia, Egypt, United Arab Emirate). He choose to make ladies dress ladies dress in Middle East because of the habit of woman in there who only use the dress for 1-3 times, then they will buy another dress again. At least, he wants every woman in the Middle East to have a dozen of Hadiputra products. Currently, 20 countries in the Middle East becoming Export Target of Hadiputra. Now, Hadiputra produce around 1200 dozen of Ladies Dress and in a month this company could export 20 container if in pool/ high season (January-September) and around 5 container in low season (October-December). In low season, Hadiputra wil change their products mostly into Sarong.

2.3.5. Company Facility

Employee plays the most important role and asset in any industry. To ensure that the employee can work optimally, PT. Hadiputra Gemilang strives provide facilities that all employees can enjoy. Here are the facilities provided by PT. Hadiputra Gemilang for employees;

a. Meeting room

This facility aims to support the implementation of the meeting. This room available in every part of the office, aiming for each division part can conducting meetings smoothly, especially meetings that are important, without having to wait.

b. Toilet

There are toliets for laborers/ operator, for the official staff, and for the director.

c. Canteen

This canteen is personal business from outside company. This canteen open from 6 a.m. until 5 p.m.

d. Water Station

The company provide water station for each department everyday.

e. Fire extinguishers

This tools is always available to prevent unexpected things (fire accident) happened.

f. Kitchen

The company provie kitchen for their workers to make a drink like coffee, tea, etc. They could also wash their dishes equipment in this kitchen.

g. Sink

The company provide sink to keep the employee's hands clean.

h. Dorm

The company also provide dorms for their employees whose home are really far from the factory.



CHAPTER 3

COMPANY SYSTEM

This chapter is explained about company system which consist of business process, list of product, production process, and production facilities.

3.1. Business Process

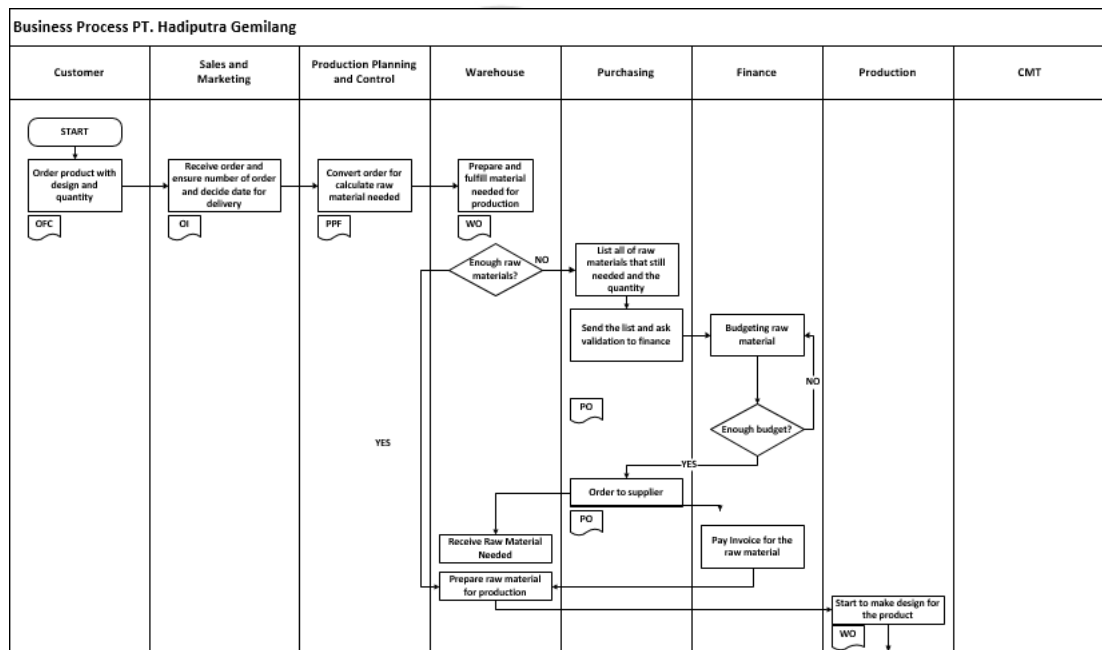


Figure 3.1. Business Process

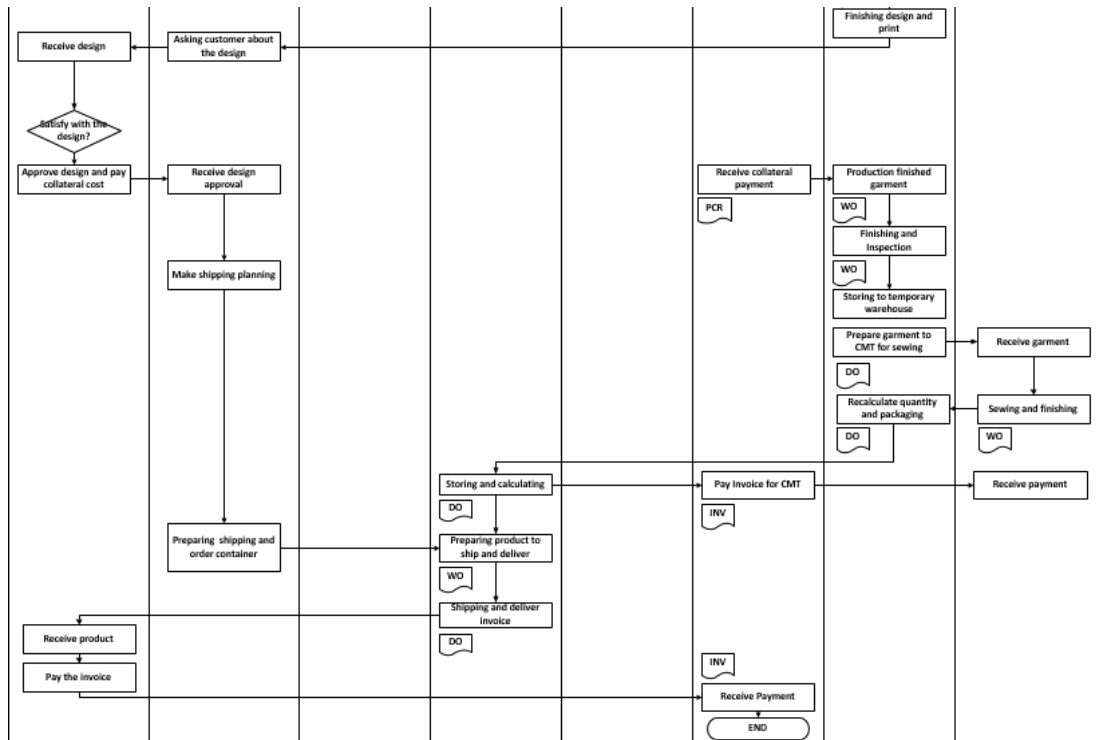


Figure 3.1. Business Process (Continue)

Notes:

The explanation of document used at the flow of the business process are:

- a. WO: Work Order
- b. DO: Delivery Order
- c. PO: Purchase Order
- d. POs: Purchase Order from supplier
- e. OFC: Order Form Customer
- f. PCR: Payment Confirmation Receive
- g. PPF: Planning Production Form
- h. INV: Invoice from supplier/CMT

This is as the explanation about business process at PT.Hadiputra Gemilang.

i. Customer Order

At the first buyer will order product form PT.Hadiputra Gemilang by giving design of *batik* to the sales and marketing department or buyer can ask some design for them.

Order from buyer will record at document named Order Form Buyer.

ii. Negotiate

After receive order, sales and marketing will give the buyer estimation date for product delivery, sales and marketing will negotiate with the buyer. Then, sales and marketing will ensure about the number, design, motif, and color of product that buyer want to buy. Buyer will receive invoice for this negotiate and sales and marketing also has a copied invoice for this.

iii. Production Planning for Buyer Order

After receive buyer order sales and marketing will give copied invoice to the Production Planning and Control Department. In this area, the department will convert all of buyer order into the quantity of raw material needed like how many fabric roll will prepare, the dyes and other raw materials. Then, PPC will make a document name Planning Production Form to calculate. After they calculate, the department will send work order to the warehouse to make preparation of all raw material.

iv. Material Preparation

The warehouse department t will check whether the raw material needed for production is available or not, if the raw material is available, the work order should be return back to PPC department and PPC Department will make copied the work order for the matching color laboratory to calculate number of chemical preparation must be prepare and to the production department. But, when the raw material needed can't be fulfil the order, warehouse department will ask list of raw material needed to purchasing department. Purchasing department will recalculate material needed by warehouse department, if the list approve, purchasing department will make purchase order to finance department. Finance department will budgeting and if the budget is enough they will contact purchasing department so purchasing department can contact to make purchased order for supplier. Supplier will receive purchase order and send the raw material and invoice to purchasing. Then purchasing will give invoice from supplier to finance, after finance make payment, warehouse can directly receive the material needed and start make preparation for production.

v. Production Process

Before they produce a lot of product, matching color laboratory will collaborate with design department to make the sample of the product because at the first when buyer give the design or choose the design, sometimes design is new and haven't print at the fabric it can be just soft file or paper print and it's not real. To make it

real, this two department will make a sample formed a sheet of *batik* garment, then they will send it again to the sales and marketing. Sales and marketing will send the photo for buyer, when buyer approve, buyer will give collateral cost to finance, so the production process can be run follow the instruction of work order from the PPC Department. After production finish until the *batik* garment, the semi-finished product like that will forward to garment department to make finishing and inspection process to ensure there will be no defect found at semi-finished product. Production department give the information by using document named work order.

vi. Sewing Process

The semi-finished product (*batik* garment) will prepare to send to the CMT in order to make finished product that is woman apparel with many types of model and design. The CMT will receive work order and delivery order from garment department that included at production department to sew the *batik* garment into woman apparel. After finish sewing the product, CMT will return back the delivery order to the production department and production department will receive the invoice from the CMT and forwarded to finance to make payment. The production department and warehouse will recalculate number of product with the delivery order and work order has given before it sew, if there is no problem found so production will package the product and send into the warehouse also CMT will get the payment.

vii. Shipping Process

While production process is running, the sales and marketing that helped by purchasing department will make a shipment schedule for the product shipping. The preparation such as order the container, budgeting and rent the truck to deliver. When product is already to deliver, they will make delivery order to the supplier followed by deliver the container of product by ship.

viii. Receiving Finish Product

After product already in shipment process, sales and marketing will contact the supplier. When product is arrived, buyer will get delivery order and invoice from the company. Buyer will calculate and make approval, when the product is clear, buyer will send the payment to the sales and marketing. Sales and marketing will forward it into finance and the business process in end.

3.2. List of Product

Actually, the product from PT. Hadiputra Gemilang is just woman apparel or in Bahasa called as Daster. But, the woman apparel has many variant of design or model. The variated model of product of PT. Hadiputra Gemilang can be shown in Table 3.1. :

Table 3.1. Product Design

No	Model
1	Short Sleeve or BBP
2	Mama Size
3	Small Embro
4	Medium Embro
5	Big Embro
6	Maroko
7	Round Neck
8	Round Neck with Scarf
9	Round Neck with button at the back with Scraf
10	Double Elastic with Scarf
11	Smock
12	S/S Lace
13	S/S Trace
14	Normal
15	Maxi Serot
16	Clock Serot
17	Long Sleeve Manet
18	Breakdance

In this figure can be shown seven top products as the most wanted model which ordered by buyer from PT. Hadiputra Gemilang.

Table 3.2. Most Wanted Design of Product

No	Model	Picture
1	Big Embro	
2	Medium Embro	
3	Small Embro	
4	KLB	
5	BBP	
6	Normal	
7	Maroko	

3.3. Production Process

Production Process at PT.Hadiputra Gemilang conduct by manually and semi-automatic process. Manual process conduct by operator using some equipment, like cutting the fabric, make patter for cutting, inspect finished product and

packaging. Some i-automatic process conducted by operator using machine, like designing, printing, washing, scoring, and others process. All of process at PT.Hadiputra Gemilang can be shown below:

3.3.1. Design Process

First production process to make *batik* garment is design the motif. In this company, the design process for the motif is not purely as a new idea from the designer. Design process in this company called as tracing. Tracing process is collect, collaborate and combine some motif or design that already exist into one new design with some improvement or creation. Sometimes when buyer already give the design, design process just make the revision and estimation about contour at the motif as an estimation when it print into the fabric, the color in every contour will be spilled out or not. Design process in this company use design software named Adobe Photoshop. This process take time around 3 days according to level of difficulty and size of design picture. When design easier so design process will be faster. When design process are finished, it will print at the paper and ask for approval. When design approve so the designer will give the soft copy file that shared by LAN to engraving operator to make the screen and give the printing paper to PPC Department and Matching Color Laboratory.

3.3.2. Engraving and Perfecta Process

Engraving process is a process to print the screen of *batik* design. Before printing process, preparation for the screen must be conducted. The screen is made from monyl that sticks at the aluminum frame. After that, screen print by printer in this company there are two printers type ATEX 51625E. Then, the screen will go to next process that called perfecta. Perfecta is a process to make the ink of printer will permanently stick at the monyl by so design contour will be shown at the screen or it similar as burning process by ultraviolet that takes time around 2 minutes for every screens using expose machine. Then, the screen will be washed in order to make black ink from the printing loss from the monyl and ready to use.

3.3.3. Matching Color

Matching color is process to formulate chemical preparation in order make a color that can fulfill buyer satisfaction. This process conducted by worker at matching color laboratory at the same time when engraving process is conducted at the other workstation. The color must be specially formulated by the worker that has experience at matching color because color will be shown at the garment is not like usually

color that sold at the market. In every color it will contain different dose of chemical preparation. Chemical preparations to make dye are alginate or thickener, urea, dye, hot water, resist salt and sodium carbonate. All of chemical preparation has own function in order to make dye can attached at the fabric. The process is pour all of the chemical preparation, stir until it perfectly in equal condition.

3.3.4. Make Sample

After the screens and dyes are already used to make the sample, then the process to make sample will start. The process to make sample is used one sheet of fabric. The way to put the dyes also using manual way, operator just put the fabric then put the screen over the fabric, manually pour the dyes into screen and make dye equal fulfil the fabric by using leveling equipment. Doing this same process for the other screen and color.

3.3.5. Washing and Drying Process

Washing process is the initial process at production area. In this process the war fabric should be wash by some chemical preparation in order to remove the *kanji* that stick at the raw fabric. Because when the *kanji* was still stick, the dye will not stick well at the fabric and the texture of the fabric will be though/ not smooth. After that, fabric will be go to drying process.

3.3.6. Scoring Process

Scoring process is process to measure the parties of fabric or classification of fabric. In this process fabric will classify based on the length that needed by production planning department. It must be classify because every fabric design has different order, based on color or motif, so the length of fabric must be suitable with the order and effectively used it means minimize connection area and scrap. The fabric will be measured, marked and recorded. All of information will transfer to PPC Department and PPC Department will make planning based on the scoring process. Scoring process also can be a way to know the percentage shrinkage of a fabric.

3.3.7. Printing Process

After scoring process, fabric will give to printing station based on the length classification. Printing process is a process to print the motif of the *batik* by using flat machine. This process is semi-automatic because even though the machine run automatic by setting the machine program, but the worker must continuously

pour the dyes in every screen when it exhausted. In this process fabric are print with several design and color according to the screen that put at the machine.

3.3.8. Ripening Process

This process is conduct to make the color of *batik* garment as the result of printing process are permanently so when it wash by water or detergent the color will not spilled out. This process is conduct by steamer and cylinder dryer machine. The process if steamer or cylinder dryer is like cooking the *batik* garment by give the garment steam that can make the color will stick permanent into the garment.

3.3.9. Re-washing and Re-Drying

After the *batik* garment are ripped, so it should be re-washing and re-drying again to make alginate or others chemical preparation to make dye stick at the garment removed from the garment. Also in this re-washing process is added by softener to make *batik* garment smoother than before. After washing, the continuously process is re-drying.

3.3.10. Setting process

Setting process is conduct by stenter machine. In stenter machine, *batik* garments are setting in order to achieve the specification. In stenter machine *batik* garment can be set to be wider, longer, shorter or more narrow area based on specification size that needed on order.

3.3.11. Finishing Process

At finishing process, after *batik* garment are finished, it will go to calendar machine. Calendar machine is machine that contain paraffin that can make the *batik* garment will be softer and to remove all the fabric furs or fabric fibers.

3.3.12. Cutting and Inspection Process

Inspection process is a process to check the quality of the *batik* garment, whether is already meet expect specification it means there will be not found any defect or not, if there is any defect product it will be signed or eliminated and if possible to rework it can be rework again. In type of cutting product, the inspection process is conduct parallel when cut the *batik* garment in order to minimize inspection time. Cutting process conduct manually by the worker by using scissor and for cut the pattern of the clothes, it use cutting machine.

3.3.13. Sewing Process

The next step is sewing process. In this step, the *batik* garment will sew and formed as the woman apparel that ready to use. This sewing process is conduct by CMT that cooperate with this company. The processes at CMT are sew the *batik* garment, labeling the garment with the brand and give hand tag at this product. After it finished, CMT will send it again to the company.

3.3.14. Packaging and Labeling Process

This is the last process on the production process. At this step the product will be package at the plastic bag and labeling with some information sticker such as, the motif example KM6750, the size chart and the brand of the company. After that, the packaging of product will re-package using the bag or cartoon in order to make easier when it deliver to the buyer/ shipping process.

The production process is finished.

3.4. Production Facility

3.4.1. Facility Layout

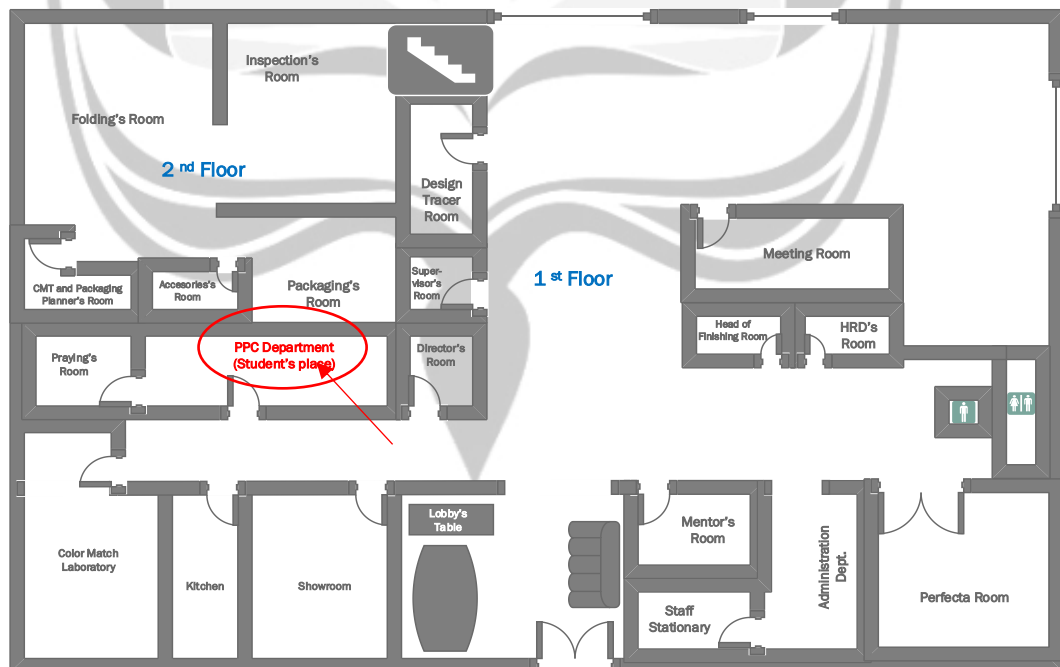


Figure 3.2. Facility Layout of Fabric's Office

3.4.2. Production Facility

Production process facilities at PT.Hadiputra Gemilang are consist of some facilities, there are:

a. Pallet

Pallet is used to put raw materials or product that will be transport or process. After material is processed, material or product will be transported by hand truck. This is the figure of pallet that used in production area and warehouse.



Figure 3.3. Pallet

b. Trolley

Trolley is used to transport the fabric from one work station to other workstation. After the fabric are put in the trolley, so trolley will transported using forklift. This is the figure of trolley that used in production area.



Figure 3.4. Trolley

c. Hand Truck

Hand truck is a material handling that used to transport one product or material from one location to other location. Usually, the product that will transported by

hand truck is located on the pallet. Hand truck that used in warehouse of this company is completed by hydraulic mechanism. This is the figure of hand truck that used in production area and warehouse.



Figure 3.5. Hand Truck

d. Forklift

Forklift is used to carry trolley, pallet or others heavy things and placed it in several place. There are three forklift used by this company. This is the figure of Forklift that used in production area and warehouse.



Figure 3.6. Forklift

e. Material Lift

Warehouse of this company is consist of two floors. Material lift uses to carry the finished product that receive at first floor going up to second floor. This is the figure of material lift that used in production area and warehouse.



Figure 3.6. Material Lift

f. Manual Conveyor

Manual conveyor is used to transfer the finished product from labeling and packaging department to truck that deliver finished product to warehouse. This is the figure of manual conveyor.



Figure 3.7. Manual Conveyor

g. Boiler Machine

Boiler machine is power supply form other machine for this company. Boiler machine use coal or oil as the fuel that will be transform into power to run the other machine that need high power. There are two boiler machine types at this company. In this figure can be shown boiler machine that used.



Figure 3.8. Boiler Machine

h. Computer Design

Computer design that use in this company just the basic or regular computer without any special specification. There are seven computers that used to make design for *batik* garment.



Figure 3.9. Computer Design

i. Screen Printing Machine

Screen printing machine is used for print the design on the monyl. There are two machines used for printing on the monyl. At figure can be shown kind of printing machine. Actually, there are two printing machines type ATEX 51625E.



Figure 3.10. Screen Printing Machine

j. Expose Machine

Expose machine is used to burn the screen by ultraviolet light in order to make design contour of the screen will permanently.



Figure 3.11. Expose Machine

k. Washing and Drying Machine

Washing and Drying machine is a machine to wash grey fabric to make fabric is clear from *kanji*, whitening and softening process. So when grey fabric is coloring by dye, the dye will stick and absorb in the fabric perfectly. Type of washing and drying machine used in JSS Washing Machine.



Figure 3.12. Washing and Drying Machine



Figure 3.13. Washing and Drying Machine



Figure 3.14. Washing and Drying Machine

l. Scoring Machine

Scoring machine is used to measure the length of fabric and give sign in every roll of fabric.



Figure 3.15. Scoring Machine

m. Flat Printing Machine

Flat printing machine is used to print the design of *batik* on the fabric. In this company there are three types of flat printing machines, those are CHANG WON, YU JIN, and ICHINOSE. In this figure can be shown flat printing machine type CHANG WON.



Figure 3.16. Flat Printing Machine



Figure 3.17. Flat Printing Machine

n. Stenter Machine

Stenter machine is used to set the fabric based on needs of customer order, like to make fabric wider or longer than before and also to dry the fabric. There are two stenter machines type IL SUNG at this company. In this figure can be shown the stenter machine.



Figure 3.18. Stenter Machine



Figure 3.19. Stenter Machine

o. Re-washing and re-drying machine

Actually the re-washing and re-drying machine is the washing and drying machine but has different function. This machine is used washed the *batik* garment to make *batik* garment clear from other chemical preparation and drying it. Washing and Drying machine use in this company is WINCH Washing Machine. In this figure can be shown the washing machine.



Figure 3.20. Re-washing and Re-drying Machine



Figure 3.21. Re-washing and Re-drying Machine

p. Steamer Machine

Steamer machine is used to make the dyes are bound permanent and perfectly by steam around in the machine with the fabric, so when *batik* garment wash by the water not all the dye are fade. In steamer machine, half wet of fabric can be processed. Steamer machine type used in this company is WAKAYAMA. In this figure can be shown the steamer machine.



Figure 3.22. Steamer Machine

q. Dryer Cylinder Machine

Dryer Cylinder machine has same function with steamer machine used to make the dyes are bound permanent and perfectly by steam around in the machine with the fabric, so when *batik* garment wash by the water not all the dye are fade. In steamer machine, only dried fabric can be processed. In this figure can be shown the dryer cylinder machine.



Figure 3.23. Dryer Cylinder Machine

r. Calendar Machine

Calendar machine is a machine contain of paraffin in order to make the *batik* garment will be softer and to remove all the fabric furs or fabric fibers. In this figure can be shown the calendar machine.



Figure 3.24. Calendar Machine

s. Inspection Machine

Inspection machine is machine used to inspect the finished *batik* garment by rolling the fabric and the workers will give sign when there are defect found. In this figure can be shown the inspection machine.



Figure 3.25. Inspection Machine

t. Cutting Machine

Cutting machine is used to cut the pattern model of woman apparel will be produce. Type of cutting machine use in this company is JEL CNV Cutting Machine.



Figure 3.26. Cutting Machine

u. Dye Mixer Machine

Dye mixer machine is used to mix and stir all of materials needed to make dye for the fabric.



Figure 3.24. Dye Mixer Machine

CHAPTER 4

INDUSTRIAL PRACTICE ASSIGNMENT

This chapter will explain about student assignment that given during the industrial practice period on PT. Hadiputra Gemilang, such as:

- a. Assignment Scope
- b. Rights and responsibilities
- c. Methodology to complete the assignment
- d. Result of industrial practice project

4.1. Assignment Scope

4.1.1. Assigned Department

Student had opportunity to work with Production Planning Control (PPC) Department. This department divided its focus into two, which is to make production plan for production floor and production plan for CMT (Cut, Make, Trim). Planning for production floor has role to make a quantity and schedule plan from washing the grey raw fabric, stentering/ setting, printing the fabric, steaming, re-washing, drying, and re-stentering, while the production plan department for CMT has role to make a plan of quantity and schedule for cutting the fabric, distribute fabric that has been cut to the CMT services, schedule when to package, etc. The department that the student assigned is production plan for CMT, where everyday student is concerned in schedule planning for each CMT (sewing/ convection), how much the material quantity should be given to the CMT, checking the availability of material in/ out for the CMT, and checking the fulfillment order for each buyer. In checking the fulfillment order for each buyer, student should first know the schedule from the shipment schedule and So, this CMT Planning department also connected with both the garment manager and head of production planning control department.

In the beginning, Hadiputra Gemilang done the sewing process by themselves, but, they found out that it is easier and cheaper to cooperate with CMT services. Student also given assignment to know the partial productivity (only for material productivity) between material given by PT. Hadiputra Gemilang towards 5 CMT places (CMT Ami, CMT Lala, CMT Niko, CMT Edi, CMT Nur) and material out of those CMTs. CMT Nur is the only CMT that officially works under PT. Hadiputra

Gemilang. Student has three flexible place to to the job, the first one is in the PPC Department Room under Mr. Herni as the head of production planning and control department and Mr. Wahab as the head of production floor (in the first floor, Figure 2.3.), the second one is beside Mr. Suryono who is student mentor (usually for consult), and the third place is in front of the accessories room shown in figure 4.1. together with Mrs. Tri, Mrs. Warti, and Mrs. Nur as student's working partner. Student also given extra assignment which is to evaluate and analyze the error happen in this factory especially from the human error. student also tries to help production and planning department to know the exact cycle time needed by each sub-department, so they can make schedule for the laborers more wisely also increase the productivity.

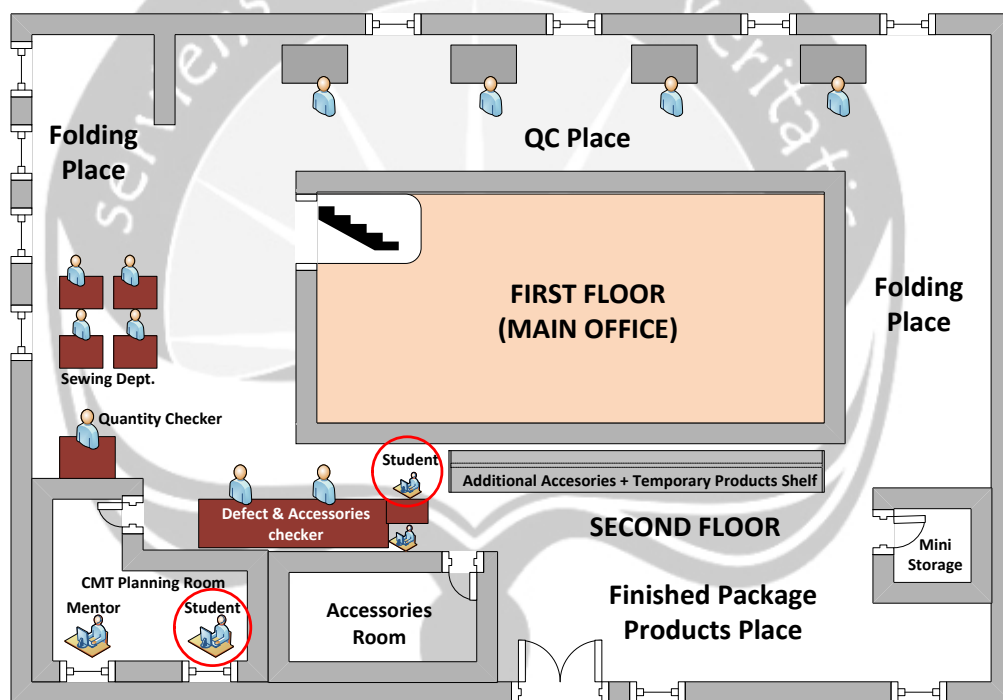


Figure 4.1. Layout of the Second Floor

Actually, the one who monitor all of the garment process (including CMT) performance is in this Mrs. Mona who is located in the main accounting office in Karet, Jakarta, but because the student could only observe the work in Tangerang, so, the one who is responsible for the student is Mr. Susanto as the supervisor, and the mentor are Mr. Joni (also act as the sales and marketing manager) and Mr. Suryono as the CMT Planner. Student not only get help from those people, but also get a lot of help from the production staff, administration staff, HRD staff,

Screen Staff, Cutting Staff, Inspection Staff, Color Matching Staff, Design Staff, Packaging staff, CMT Nur Staf, Export and Warehouse staff and all of the operators or laborers in there who were happily shared their knowledge about all of the flow-process of the whole company that the student needed.

4.2. Rights and Responsibilities

In this CMT Production Planning Control Department, the rights and responsibilities that given to the student was related to scheduling, controlling, and analyze which one CMT which already has highest material productivity and lowest material productivity for the past six month, what is the factor that cause the productivity of each CMT becoming unstable. The limitation to know the historical data is only six month because beyond that six month, the staff who make material in/out of CMT report is a different person (there is changing staff process), and the new staff didn't know where the file is being kept.

Based on that problem, student had task to do daily observation about recent material in/out from the CMT/ factory, but the student only allow to do the observation in CMT Nur, because it is owned by Hadiputra Gemilang and the location is near the factory, and for the other CMT, the student could know the data from online spreadsheet excel managed by the HRD Staff. Student will try to evaluate the number of material in and out by using histogram. In here, the reject (defect) product count will reduce the total amount of material given from the CMT to the factory. From the histogram, student could see the dynamics of partial material productivity each CMT during six month for each model/ type of the products, or total partial material productivity of each CMT, and event compare between one CMT with another CMT.

The other task was the student should check how far percent of completion for each buyer order, whether it is in the production floor process for the raw fabric, or in the cutting process (finishing), or already scheduled in the sewing process (in CMT), or already in the packaging process. After checking the in/out material data (data stock material to CMT) and the progression data (percent of completion progress data) everyday, student will report it to the mentor who has responsibility as the CMT planner to help him make a schedule for the order that not yet done in the sewing process. To solve this problem, student will help it online with gantt chart (forward scheduling), but still see the due date of shipment for each buyer order. Student also could get this Order Buyer data from the HRD Staff. To get this

data, student should communicate with the the head of CMT planner, head of Planning and Production Control, the head of Production, and the head of Finishing to support the real data. The main problem in here is miscommunication between one department with another department. So, sometimes the head of CMT planner didn't know that the material is already available, or the head of production doesn't really know the capability they should force for the production floor to meet the CMT target.

Student also found that when calculating the amount of the accessories for each order is quiet a bit problem, because there is no fix format yet (still disordered). In the past, the laborer found difficulties to know the when and how much total amount they receive the accessories from Karet, Jakarta, and the total amount they give the accessories to the CMT in a month. So, to make the report becoming more simple, student tried to conduct a new form to know data stock report for accessories in a month for the laborers. To know the amount and type of accessories, also the amount and type product wanted by the buyer, student could see it clearly from the recap of the work order sent from Karet, Jakarta (*SPK : Surat Perintah Kerja*) because basically the one who make shipment planning for each buyers is Mrs. Helen. Between staff in Karet, Jakarta and the staff in Factory/ manufacturer floor, they never conduct a meeting together to discuss a problem.

Beside those task, the supervisor, the mentor and the director also willing to know the weakness of each department. So, they give special task/ project to the student to evaluate the failure that may happen to each departements especially from the human error aspects so they hope they can improve it in the future. To solve this problem, student try to use FMEA Analysis to know the rating of failure happen in each departments. To give FMEA Analysis, student first tried to do observation and strongly supported by doing direct interview with the laborers/ staffs that in charge on their job of each departments.

After student conduct the study, student tried to propose some solutions, suggestions, and also improvements for this company based on the given data and and real observation. In order to finish the task, student had rights and responsibilities in this company.

Rights given as the following :

- a. Student permitted to enter all production area and learn about production process (only in the factory in Tangerang and the Warehouse “*Gudang Timur*” in Tangerang)
- b. Student permitted to observe the manufacturing process and communicate with mentor, manager, staff and operator
- c. Student permitted to take picture and video while manufacturing process
- d. Student permitted to access and copied the report for production and schedule
- e. Student permitted to help staff record the production report and make some document in order to make student know detail about the whole of the company

Responsibilities given as following:

- a. Student should conduct observation and study to find improvement opportunities to know the condition of production process by analyze the reject product
- b. Student must give evaluation and collected the information that received on previous day on the next day before student do the work practical on each
- c. Student should make finished report and submit to mentor

4.3. Methodology to complete the assignment

Methodology used for student in work practical at PT.Hadiputra Gemilang as shown in Figure 4.2.

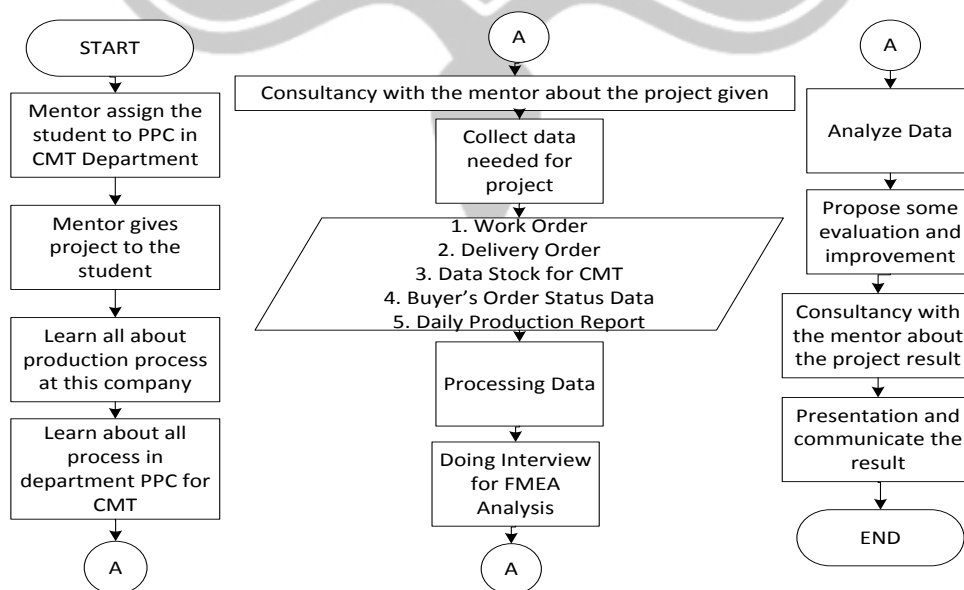


Figure 4.2. Methodology to Complete the Assignment

This is the explanation about every process that shown at flow diagram above:

a. Start

b. Mentor assign the student to PPC in CMT Department

Mentor assign the student to PPC in CMT Department on the second day of Industrial practice period, because at the first day, student had been guided to know about the whole of the process of the company as the introduction.

c. Mentor gives project to the student

The projects gave to student was explain at the previous chapter which suitable with condition and problem at the Production Planning and Control on CMT Department at PT.Hadiputra Gemilang.

d. Learn all about production process at this company

Before conduct the project given by mentor, student had been asked to learn about the production process at that implemented at PT.Hadiputra Gemilang in order to find the description how to conduct the problem given. Student learned by observed and had some interview with the staff and operators to get the basic information.

e. Learn about all process in department PPC for CMT

After student knew all the process, student had been guided to learn deeply about the process in PPC for CMT Department, how it is scheduled, checked and it worked in order to do the project about problem given at PPC for CMT Department.

f. Consultancy with the mentor about the project given

Student consulted with mentor about the project planning that will be conducted later, whether it was true or false. After the mentor agreed so student started to conduct the project.

g. Collect data needed for project

By project planning that accepted, so student needed some data to complete the project. Some of data that needed was the work order, flow of delivery order from production department, stock material data between CMT and the factory, buyer's order status data, and the daily production report to make data analysis.

h. Processing Data

Processing data conducted by Microsoft Excel and Microsoft Word. Data was separated into some file that had different function. Data separated into 5, which are partial material productivity each CMT, Cycle Time data, Planning

Board Simulation, FMEA Analysis, and Accessories form. After all data needed was collected so student started to analyze the data.

i. Doing Interview for FMEA Analysis

In here, student doing interview to each staffs and head of departments to know the failure that may happen to each works, the severity rating of the effect, the occurrence rating of the failure, and the level of detection rating for each failure.

j. Analyze Data

Based on data received, student started to make analysis of data. Result of data analysis based on the theories at the study literature. To know de increasing or decreasing productivity of each CMT focus on the material productivity, it used histogram chart. To know, the know the cycle time of each production department, using stopwatch and observation, to make planning board simulation, using excell spreadsheet, to analyze the failure of each department, using FMEA Analysis and simply the stock data of accessories, making a new form.

k. Propose some evaluation and improvement

Evaluation and improvement was proposed based on the result of data analysis. When the data analysis showed the bad condition based on the theory so it needed improvement and evaluation in order to increase profit and customer satisfaction for this company.

l. Consultancy with the mentor about the project result

After conducted data analysis and gave some evaluation, the result should be consultation with the mentor to receive agreement.

m. Presentation and communicate the result

After the project result signed by the mentor as the agreement so student would be present the project by communicate to the others staff, like head of production and staff in CMT planner about the project result.

n. End

4.4. Result of work practical assignment

4.4.1. Introduction

PT. Hadiputra Gemilang is a manufacturer that conduct the business at garment especially on the woman apparel that will be exported to Middle-East. As a manufacturer, PT. Hadiputra Gemilang has own product way in order to make their

customer satisfied. They always want to deliver their products in the right time so their buyer can be satisfied. To deliver their products in the right time, it need good process. the company should know what is the root of the problem or their weakness so they could improve it. Below are the aspects that make the products can be delivered on time and the production would be going on as expected :

- a. Cycle time of each process is known, so it is easier to make the production planning.
- b. Making good communication (coordination) between each department in the factory, and also the office in Karet.
- c. Know the capability of productivity of each CMT based on pas months report, not only checked it everyday.
- d. Evaluating the weakness of each department.

Sometimes there is miscommunication between each department, especially between CMT Planner, the head of production floor, the head of PPC, and the head of finishing department, this will give another problem to the production process. They also only see whether the CMT is good or not by receiving report from recent activities. Also between one department and the other department didn't really know the task, so they couldn't back up one with another. The accessories laborer also find difficulties on making monthly report data stock. Based on that problem, student receive project to give analysis about the root of production scheduling and the productivity, also propose some evaluations and improvements in order to improve the productivity and performance of each department through evaluation for production process.

4.4.2. Problem Formulation

- a. What is the cycle time for each production department?
- b. How to make good coordination between each department to avoid miscommunication?
- c. How is the dynamics of the partial material productivity of each CMT? And what is the factor?
- d. What kind of evaluation and improvement can be done to minimize the failure of each department?
- e. How to conduct a simple monthly accessories data stock to help the laborer?

4.4.3. Assignment Objective

The objectives of this assignment are:

- a. To know the exact cycle time of each department to help production planning process
- b. To minimize miscommunication between departments
- c. To know the dynamics of partial material productivity of each CMT and what factors behind it
- d. To make an evaluation and minimize failure of each departments
- e. To help the accessories laborer make the data stock report more easier

4.4.4. Problem Limitation

Problem limitation from this assignment is only based on the data that comes from daily production report and check list of reject product and some added information data about the problem above process. Besides that, methodology that used to conduct the project is only based on the explanation from the mentor and some literature study from the university lesson. There is no further explanation about the cost because the limited information about the price, etc, so student only focus on the material.

4.4.5. Methodology to complete the assignment

For the methodology, it already exist at the previous chapter. Methodology to complete the assignment shown at Figure 4.2.

4.4.6. Data and Analysis Data

a. Data and Analysis Data for Cycle Time of Each Departments

Table 4.1. Consumption fabric in meter

Type	Sleeve	Size	Consumption (meter/unit)
Maroko	Long	3XL - 6XL	2,36
		M-2XL	2,18
Normal	Long	3 XL-6XL	2,22
		M-2XL	2,02
	Short	M-2XL	1,83
All Size			1,82
No Hood			2,02

Continue

Pot 9,5		2,6
Pot 9		2,06
Pot 11		2,06
Sarong		2,25
Hood		1,98

Step one is to know the total consumption of grey raw fabric. The table 4.1. above show the usage consumption meter for each one unit type of products. So example if the buyer want to buy 100 dozen (100x12=1200 unit) for model Hood, the head of PPC will multiply 1200 units times with 1,98 meter, so the result is 2376 meter for 1200 units.

Table 4.2. Completion time of design until fix color process

DESIGN PROCESS - FIX COLOR PROCESS						
No	Process	Department	Machine	Setup Time (minute)	Run Time (minute)	Completion Time / Design (minute)
1	Making/ Edit/ Combinin g Design for 1 TEX/ KM	Design Department	Adobe Photoshop C2	2	4320	4322
2	Making formula for new colour for test print/ sample	Color Matching Laboratory	urea, alginate, auxal/ resist salt, sodium dicarbonate	0	37,5	37,5

Continue

3	Test Print in small sample	Screening Department	Screen Template	0	5	5
4			Coating	0	1	1
5			Drying Machine	0	60	60
6			Engraving Machine	5	10	15
7			UV Lighting Machine	0	2	2
			Water Spray	0	3	3
8		Color Matching Laboratory	Oven	5	10	15
9		Production	Steamer	0	12	12
TOTAL TEST PRINT COMPLETION TIME						113

TOTAL SCREEN	TEST PRINT TIME/ screen	TOTAL DESIGN COMPLETION TIME
3	143	4502,5

Step two, we should know the completion time of designing the pattern process until producing the fix color for the printing. The table 4.2. will show the completion time for those process in here, the laborer can change the number of total screen that will be used for the color matching process. this amount is affected by the buyer desired pattern order/ director desired pattern order, and from the design trace maker team, so it will give the output in minute.

Table 4.3. Completion time from raw fabric washing until becoming batik

RAW FABRIC - BATIK FABRIC PRODUCTION PROCESS					
No	Process	Department	Machine	1 lot in a day (meter)=	Run Time / meter (minute)
1	Remove starch from raw fabric (grey)	Desizing & Scouring	Jet Steam Washing Machine	1747,2	0,033
2	Identify and setting the width & length of the grey	Stanter	Sunsuper '97	1747,2	0,025
3	Measure the needed grey for printing process	Kelir	Mesin Kelir	1747,2	0,015
4	Printing the batik design on grey	Printing	Flat Print 1	1747,2	0,19
			Flat Print 2	1747,2	0,13
			Flat Print 3	1747,2	0,23
5	Make sure the color stay/ attach in the fabric really well	Steamer	Steamer 1 & Steamer 2	1747,2	0,048
6	Washing Batik's Fabric	Washing Machine	Washing Machine	1747,2	0,0175
7	Drying the fabric	Dryer	Dryer Cylinder	1747,2	0,025
8	Drying the fabric and re-setting the width & length of the Batik	Stanter	Sunsuper '97	1747,2	0,025

Step three, we should know the completion time of the production floor process from the raw fabric being processed until becoming batik fabric. The table 4.3. will show the completion time for those process in here, the column lot in a day will

automatically changing from the consumption in meter table, so it will give the output in minute.

Table 4.4. Completion time from Quality Control/ Inspection

QC COMPLETION TIME							
No	Process	Department	Machine	LOT	Setup time / LOT	Run Time / meter (minute)	Completion Time / meter (minute)
1	Inspection on Roll Fabric	QC	Roll Machine Inspection	LFL	0	0,06	0,06
2	Inspection for Cutting Fabric	QC	Calender	1747,2	10	0,03	0,036

Step four, we should know the completion time of the inspection process. The table 4.4. will show the completion time for those process in here. Because there are two alternative of inspection process (which is for roll fabric/ cut fabric), the type of the inspection is different, so the head of the PPC could only choose one of the alternative according to the need/type of the order. The column lot in a day will automatically changing from the consumption in meter table, so it will give the output in minute.

Table 4.5. Completion time from Cutting Process

CUTTING COMPLETION TIME							
No	Process	Department	Deliver to	LOT	Setup Time / lot	Run Time / meter	Completion Time / Meter (minute)
1	TEX	CUTTING	CMT	1747,2	1	0,008871337	0,009443681
2	KM		Karet	LFL	0	0,1	0,1

Step five, we should know the completion time of the cutting process. The table 4.5. will show the completion time for those process in here. Because there are two alternative of cutting material will be transferred to different places (which is to the CMT in Tangerang, or CMT in Karet, Jakarta), the type of the cutting is different, so the head of the PPC could only choose one of the alternative according to the need/type of the order. The column lot in a day will automatically changing from the consumption in meter table, so it will give the output in minute.

Table 4.6. Completion time from Sewing Process

COMPLETION TIME IN CMT IBU NUR					
No	Process	1 lot (N)=	Setup Time/ lot (minute)	Run Time / part (second)	Run Time / part (minute)
				60	
1	Sambung Pundak	800	0,05	7,5	0,13
2	Sambung Punggung		0,05	14,4	0,24
3	Rempel Belakang		0,05	55,3	0,92
4	Rempel Depan		0,05	34,2	0,57
5	Obras Benang		0,05	36,5	0,61
6	Pembuatan Kantong		0,05	12,9	0,22
7	Pemasangan Merk		0	11,8	0,20
8	Pembuatan Lengan		0,05	33,9	0,57
9	Obras Samping		0,05	46	0,77

Continuue

10	Obras Bawah		0,05	24,2	0,40
11	Ronce		0,05	151,1	2,52
12	Pasang Label		0	2,5	0,04
13	Potong Pita		0	1,4	0,02
14	Pasang Pita		0	2,9	0,05
15	Bolong Kancing		0	1,5	0,03
16	Pasang Kancing		0	3,7	0,06
17	Buang Benang		0	4,5	0,08
18	QC		0	6,1	0,10
TOTAL RUN TIME/ PIECE					450,40
TOTAL LINE (34 WORKER --> 4 LINE * 8 PEOPLE + 2 QC)					4,00
TOTAL RUN TIME/ LOT (IN SECOND)					121099,4
TOTAL RUN TIME/ LOT (IN MINUTE) FOR 4 LINE					2018,32
TOTAL SETUP TIME/ LOT					0,5
TOTAL COMPLETION TIME/ LOT (IN HOUR) FOR EACH LINE					8,91

Step six, we should know the completion time of the cutting process. The table 4.6. will show the completion time for those process in here.the table 4.6. only give example of sewing in CMT Ibu Nur because of the limitation of the student to can't observe all of the CMT. But, because the varian type of the order is quite much, the PPC department can modify the table needed based on the process of each type. The colomn lot in a day will automatically changing from the consumption in meter table, so it will give the output in minute.

Table 4.7. Final Completion Time of each Order

NO	BUYER	RUN	MODEL	MOTIF / Type	QTY ORDER (dz)	QTY ORDER (pcs)	SIZE	CONSUMPTION (meter/unit)	PRODUCTION (meter)	COMPLETION TIME DESIGN (day)	COMPLETION TIME SCREEN (day)	COMPLETION TIME PRODUCTION AT DAY	COMPLETION TIME QC (day)	COMPLETION TIME CUTTING (DAY)	COMPLETION TIME SEWING (DAY)
						12									
1	X	15/01/2017	BBP	AAA A	80	960	All Size	1,82	1747,2	8,34	0,21	0,42	0,12	0,03	0,02
			BBP	BBBB	80	960	All Size	1,82	1747,2	8,34	0,21	0,46	0,12	0,32	0,02
			BBP	CCCC	80	960	All Size	1,82	1747,2	8,34	0,21	0,49	0,12	0,00	0,02
			BBP	DDD D	80	960	All Size	1,82	1747,2	8,34	0,21	0,69	0,12	0,00	0,02
			BBP	EEEE	80	960	All Size	1,82	1747,2	8,34	0,21	0,72	0,12	0,00	0,02
			KLB	FFFF	80	960	All Size	1,82	1747,2	8,34	0,21	0,80	0,12	0,00	0,02
			KLB	GGG G	80	960	All Size	1,82	1747,2	8,34	0,21	0,95	0,12	0,00	0,02
			KLB	HHH H	80	960	All Size	1,82	1747,2	8,34	0,21	0,99	0,12	0,00	0,02
			KLB	IIII	80	960	All Size	1,82	1747,2	8,34	0,21	1,80	0,12	0,00	0,02
			KLB	JJJJ	80	960	All Size	1,82	1747,2	8,34	0,21	1,84	0,12	0,00	0,02
			KLB	KKKK	80	960	All Size	1,82	1747,2	8,34	0,21	1,87	0,12	0,00	0,02

So, based on the Table 4.7. the PPC Department could know the total completion time for finish each order, even from different buyer. The way is to sum up all of the completion time from each department. Then the PPC dept could allocate the order to each printing machine (flat print 1, flat print 2, flat print 3), and make the schedule for the production running process.

b. Analysis Data to Minimize Miscommunication using Planning Board

Table 4.8. Shipment Schedule

SHIPMENT JAN '18				
NO		date	BUYER	NOTE
1	week 1	3	JUMA 1	20"
			NUSRIYA	MAKIS
2		4	JAMAL 1	20"
			(SLIMA/TNZ)	
3		5	TO	20"
4		6	SUR (KM)	20"
5	week 2	9	TALAT	20"
6		10	ORABY	20"
7		12	EMRAN 1	20"

Continue

8		17	MUDHAFAR	20"
9		19	ADAM 1	20"
10		20	JUMA 2	20"
11	week 4	25	ALIMI (KM)	20"
12		26	ABD	20"
13		29	OMAR 1	20"
14		30	NABIL	20"
15		31	ESAM	20"

From table 4.8. everyone in the department could know the shipment schedule for each buyer. One buyer can have many varian of order that is included in the work order (Surat Perintah Kerja) from Karet, Jakarta. So, this schedule also used as the guidlines to make a scheduling.

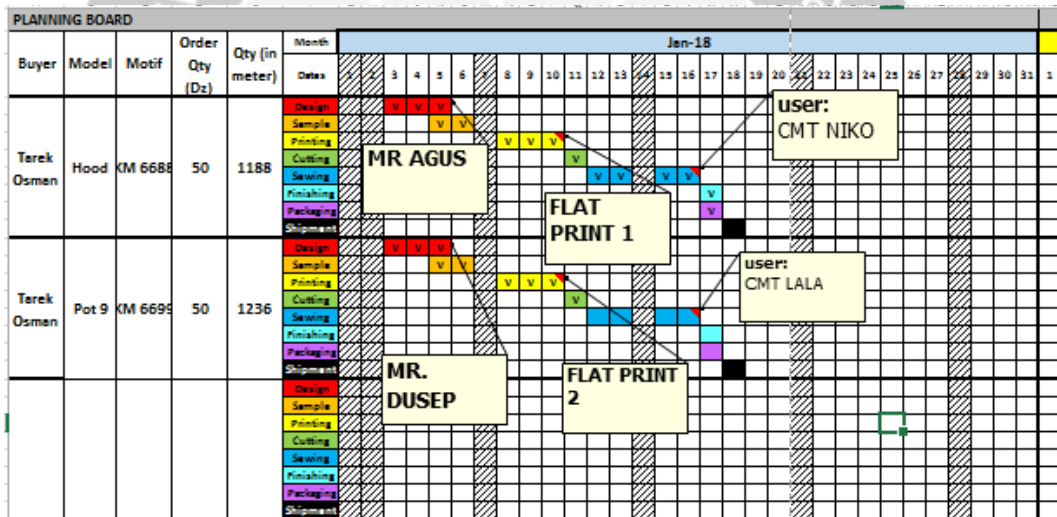


Figure 4.3. Planning Board

So, based on the planning board above, it can be used for each buye. Example buyer Tarek Osman, PPC Dept could process first the completion timebased on table 4.7, then PPC Dept could fill the column with the color according to each department/ process. They can sign the date which is holiday (didn't have to come for work) with stripe lin. For different type of product order, they could schedule it at the same time because the design team has many member that can hold different responsibility, than the printing also has 3 flat machine, they also have 5 different CMT, and the other. It is based on the head of each departmen to allocate the job. The symbol "V" indicate that the process is done already, and they can

insert comment to each process, example like the design can be conducted/ made by Mr. Agus and Mr. Dusep, etc, so they will not forgot who in charge. And this planning board can be shared online among internal head of department, so they could see it easily and not misscommunicate again.

c. Data and Analysis Data for Partial Material Productivity of each CMTs

Table 4.9. Stock Material data for CMT

DATA STOK BAHAN KE COKANGAN									
Date	: 22 Jan 2018								
no	buyer	tex / km	model	group size	qty	acc	emb ro	c mt	not e
1	SUR 2	6761	BBP	- FRE E SIZ E	180 0				
2	SUR 2	6759	BBP	- FRE E SIZ E	180 0				
1	BIZUE NA	6753	ROUNDN ECK	- FRE E SIZ E	120 0				

The table above show the scheduling planning to allocate the order to each CMT. The material in here is the material which is already finish being cut. The minimum capability to sew the order per day for each CMT are 800 unit/day for CMT Ami, 800 unit/day for CMT Nur, 600 unit/day for CMT Niko, 500 unit/day for CMT Lala, and 650 unit/ day for CMT Edi. So, the schedule plan is how to always fill the minimum order for each CMT, so the CMT will not become idle.

Table 4.10. Stock in and out Factory-CMT

3	8	9	B S	800	BBP	KM 675 8	FRE E SIZE	SUR	
	79 2	7	1						
4	10	BS		960	SMALL	KM 674 2	FRE E SIZE	EMRAN	
	95 9	1			EMBRO				
8	11	15		600	BBP	KM 671 4	FRE E SIZE	ESAM	
	33 0	26 8							

From the table above, we could know the production status of each CMT. The leftmost number shows the date of the Material store to the CMT, while the next number (still one row) shows the production storing date of each CMT back to the Factory. The number in black bold is the quantity of storing material from the factory, while the red number is the quantity stor from the CMT (can also be added with defective product / we called it "BS").

Table 4.11. Buyer Order Status

	MO TIF	SIZ E	MODEL	HASI L CUTT ING	D Z	CUTT ING	SEW ING	FINIS HING	PACK ING	HASI L PACK ING
1	KM 671 8	FR EE SIZ E	ROUND NECK	948	7 9	√	√	√	√	78 DZ + 12 PCS

Through the table 4.11 can be known where the material position but limited only from the cutting, sewing, finishing, and packaging. If the packing results are filled and highlighted the blue color means the goods are ready to be sent to the eastern warehouse.

i. Partial Material Productivity Analysis of each CMT

**Table 4.12. Partial Material Productivity for each Model/ Month CMT Lala
(Juli – Desember 2017)**

BULAN	MODEL	TOTAL INPUT	TOTAL OUTPUT	PP
Juli	Maroko	4192	4192	1,000
	Total	4192	4192	1,000
Agustus	Normal	2168	2024	0,934
	Maroko	1980	1980	1,000
	S.E.	3532	3530	0,999
	M.E.	480	480	1,000
	Sarung	5253	5253	1,000
	Total	13413	13267	0,989
September	Normal	2352	2352	1,000
	S.E.	1169	1161	0,993
	Sarung	21277	21255	0,999
	Total	24798	24768	0,999
Oktober	Normal	4464	4463	1,000
	Maroko	1900	1895	0,997
	S.E.	600	598	0,997
	Sarung	8294	8251	0,995
	Kalong	351	351	1,000
	Total	15609	15558	0,997
November	Normal	1544	1544	1,000
	Maroko	1892	1892	1,000
	No Hood	592	588	0,993
	S.E.	3527	3523	0,999
	Butterfly	2364	2358	0,997
	Total	9919	9905	0,999

Continue

Desember	Normal	856	854	0,998
	S.E.	2989	2983	0,998
	Butterfly	360	350	0,972
	Mama Pita	1800	1798	0,999
	BBP	3633	3626	0,998
	Total	9638	9611	0,997

That data above is gotten from calculation of recaping material in and out of each model of CMT Lala in the past 6 months. After get the data, student sum up each same model for each months, and calculate the productivity where it is ouput material divided by the input material.

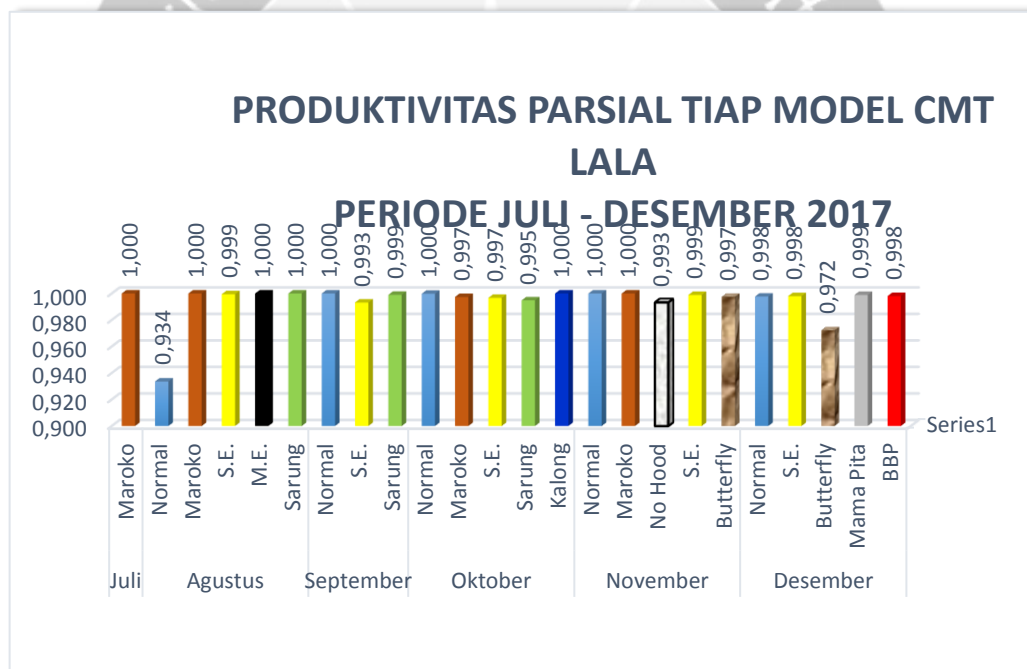


Figure 4.4. Histogram of Partial Material Productivity for each Model/ Month CMT Lala (Juli – Desember 2017)

From that graphic, we could know the dynamics partial material productivity for each model/ month by CMT lala in the 6 moths. It is cnducted from the previous productivity calculation table of CMT Lala.



Figure 4.5. Histogram of Total Partial Material Productivity for each Month CMT Lala (Juli – Desember 2017)

From that figure, we could see the dynamic partial productivity material of CMT Lala during the past 6 months but without considering the variant type of the product they produce.

Table 4.13. Partial Material Productivity for each Model/ Month CMT Ami (Juli – Desember 2017)

BULAN	MODEL	TOTAL INPUT	TOTAL OUTPUT	PP
Juli	Maroko	5140	5140	1,000
	Total	5140	5140	1,000
Agustus	Maroko	8112	8106	0,999
	Sarung	18792	17896	0,952
	S.E.	1045	1035	0,990
	M.E.	664	664	1,000
	Total	38893	37981	0,977
September	Normal	432	432	1,000
	Maroko	1160	1153	0,994
	Sarung	20276	20189	0,996
	S.E.	350	350	1,000
	M.E.	332	332	1,000
	Makanda	1379	1376	0,998

Continue

	Total	23929	23832	0,996
Oktober	Normal	5140	4845	0,943
	Maroko	2664	2651	0,995
	Sarung	8336	8312	0,997
	S.E.	2585	2567	0,993
	Makanda	360	357	0,992
	Total	19085	18732	0,982
November	Normal	2352	2339	0,994
	Maroko	2012	1989	0,989
	S.E.	2949	2939	0,997
	1 Pkt. R	5860	5537	0,945
	Total	13173	12804	0,972
Desember	M.E.	480	479	0,998
	BBP	16808	16324	0,971
	Total	17288	16803	0,972

That data above is gotten from calculation of recaping material in and out of each model of CMT Ami in the past 6 months. After get the data, student sum up each same model for each months, and calculate the productivity where it is ouput material divided by the input material.

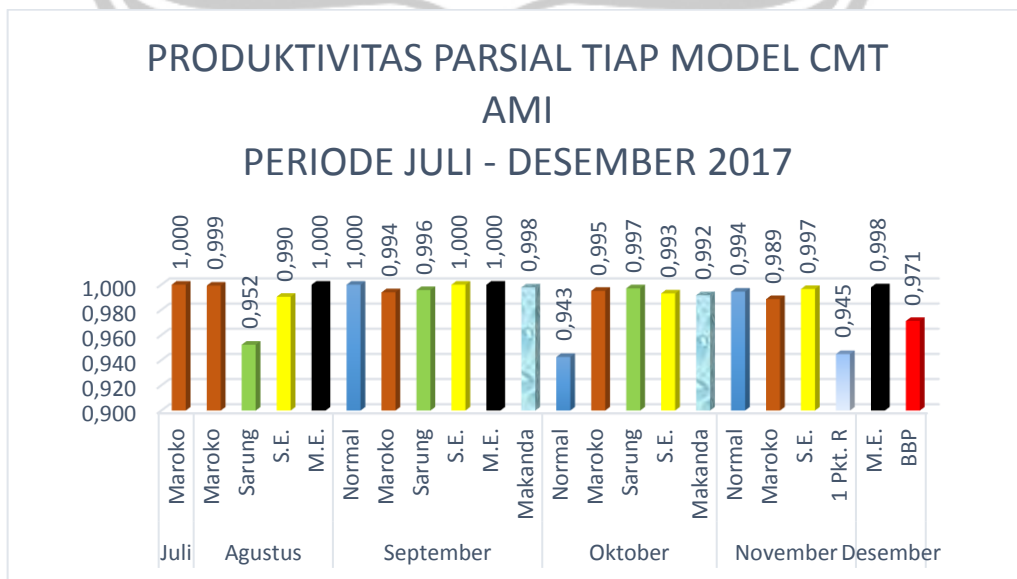


Figure 4.6. Histogram of Partial Material Productivity for each Model/ Month CMT Ami (Juli – Desember 2017)

From that graphic, we could know the dynamics partial material productivity for each model/ month by CMT Ami in the 6 months. It is conducted from the previous productivity calculation table of CMT Ami.



Figure 4.7. Histogram of Total Partial Material Productivity for each Month CMT Ami (Juli – Desember 2017)

Form that figure, we could se the dynamic partial productivity material of CMT Ami during the past 6 month but without considering the varian type of the product they produce.

Table 4.14. Partial Material Productivity for each Model/ Month CMT Niko (Juli – Desember 2017)

BULAN	MODEL	TOTAL INPUT	TOTAL OUTPUT	PP
Juli	Maroko	2232	2231	1,000
	Total	2232	2231	1,000
Agustus	Maroko	6904	6630	0,960
	Total	6904	6630	0,960
September	Maroko	4396	4387	0,998
	S.E.	2297	2296	1,000
	Total	6693	6683	0,999
Oktober	Normal	2072	2062	0,995
	Maroko	4864	4747	0,976

Continue

	Total	6936	6809	0,982
November	Normal	5756	5436	0,944
	Maroko	2476	2458	0,993
	S.E.	968	963	0,995
	Total	9200	8857	0,963
Desember	No Hood	1116	1114	0,998
	S.E.	1680	1674	0,996
	KLB	7360	7306	0,993
	Total	10156	10094	0,994

That data above is gotten from calculation of recaping material in and out of each model of CMT Niko in the past 6 months. After get the data, student sum up each same model for each months, and calculate the productivity where it is ouput material divided by the input material.

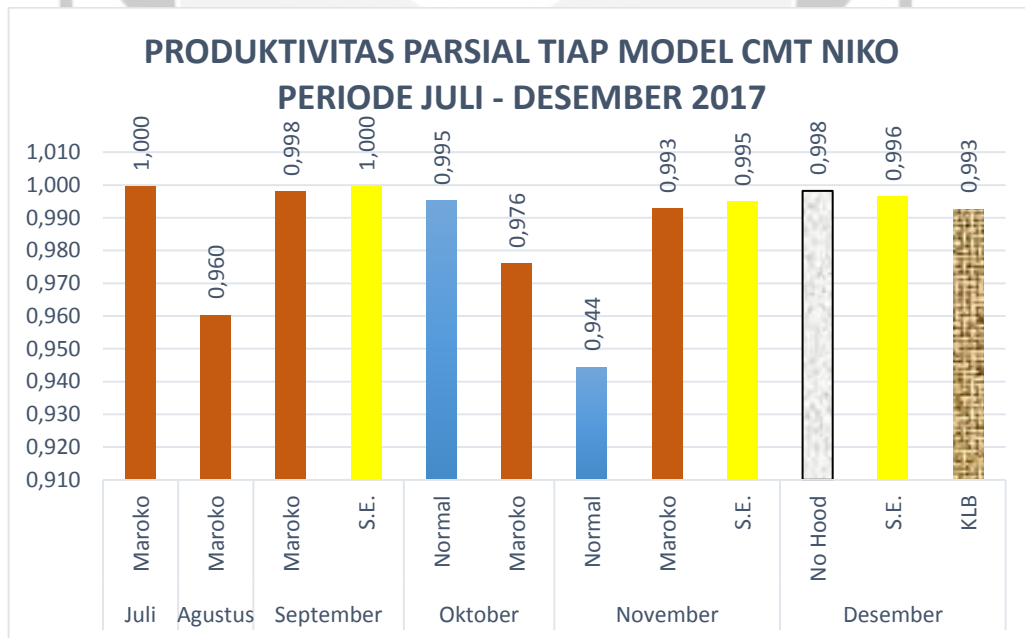


Figure 4.8. Histogram of Partial Material Productivity for each Model/ Month CMT Niko (Juli – Desember 2017)

From that graphic, we could know the dynamics partial material productivity for each model/ month by CMT Niko in the 6 months. It is conducted from the previous productivity calculation table of CMT Niko.

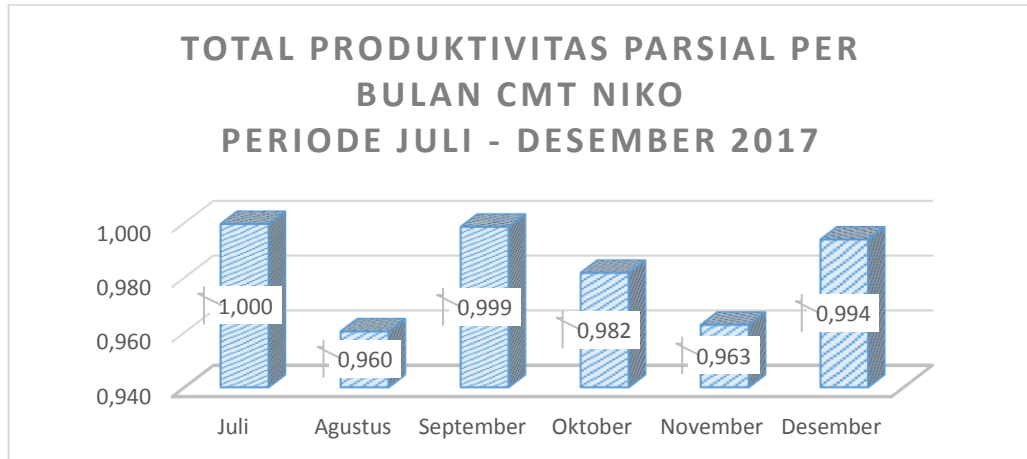


Figure 4.9. Histogram of Total Partial Material Productivity for each Month CMT Niko (Juli – Desember 2017)

Form that figure, we could se the dynamic partial productivity material of CMT Niko during the past 6 month but without considering the varian type of the product they produce.

Table 4.15. Partial Material Productivity for each Model/ Month CMT Edi (Juli – Desember 2017)

BULAN	MODEL	TOTAL INPUT	TOTAL OUTPUT	PP
Juli	Normal	488	488	1,000
	B.E.	480	480	1,000
	Maroko	576	576	1,000
	Total	1544	1544	1,000
Agustus	Normal	1692	1692	1,000
	S.E.	2280	2279	1,000
	Maroko	2150	1952	0,908
	M.E.	1080	1075	0,995
	Total	7202	6998	0,972

Continue

September	Normal	1128	1123	0,996
	S.E.	943	934	0,990
	M.E.	7312	7294	0,998
	Total	9383	9351	0,997
Oktober	Normal	2048	2044	0,998
	S.E.	600	600	1,000
	Maroko	3960	3947	0,997
	Total	6608	6591	0,997
November	S.E.	2970	2966	0,999
	Maroko	4296	4289	0,998
	M.E.	600	598	0,997
	Total	7866	7853	0,998
Desember	M.E.	2512	2509	0,999
	KLB	8399	8376	0,997
	Total	10911	10885	0,998

That data above is gotten from calculation of recaping material in and out of each model of CMT Edi in the past 6 months. After get the data, student sum up each same model for each months, and calculate the productivity where it is ouput material divided by the input material.

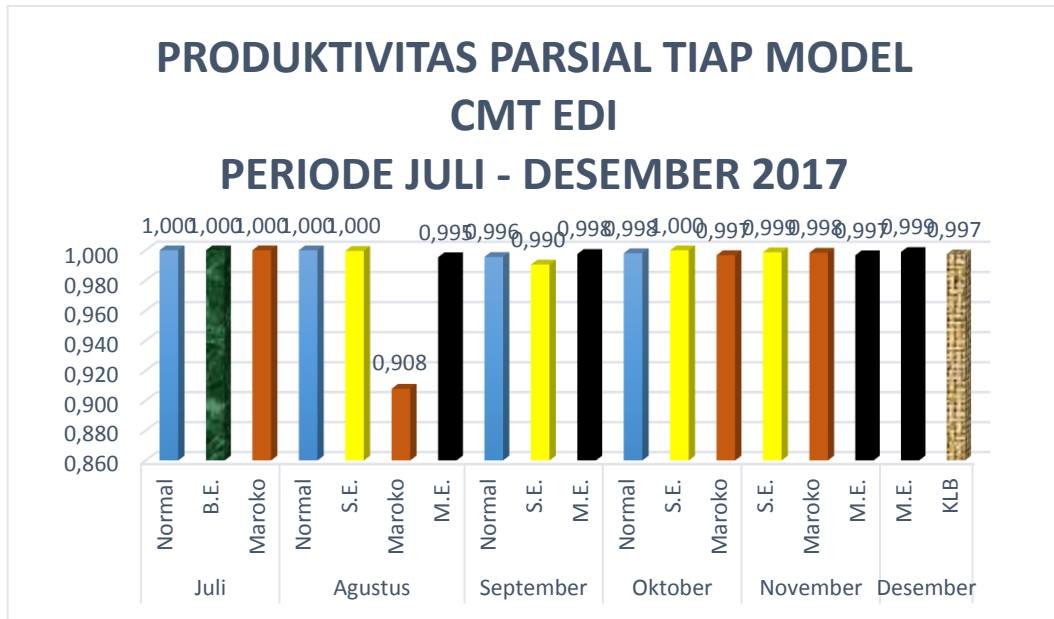


Figure 4.10. Histogram of Partial Material Productivity for each Model/ Month CMT Edi (Juli – Desember 2017)

From that graphic, we could know the dynamics partial material productivity for each model/ month by CMT Edi in the 6 months. It is conducted from the previous productivity calculation table of CMT Edi.

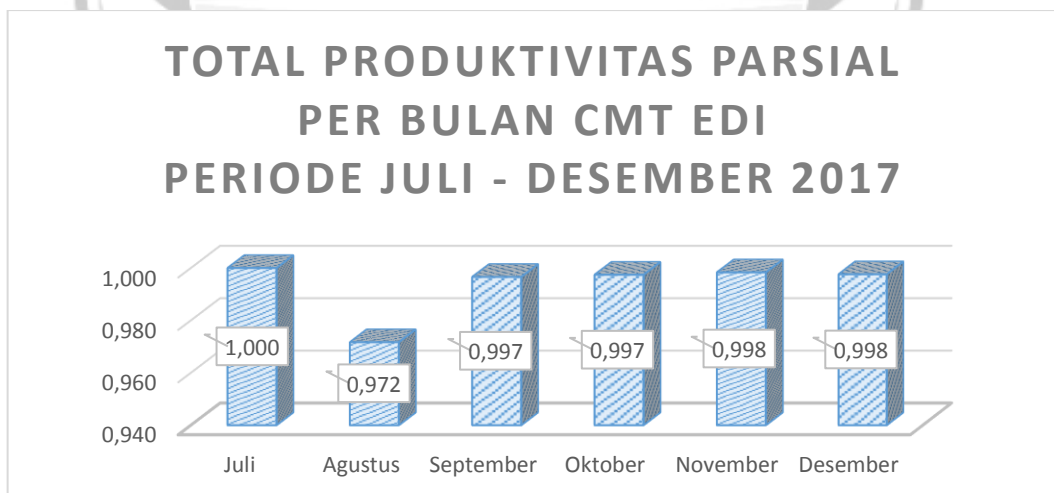


Figure 4.11. Histogram of Total Partial Material Productivity for each Month CMT Edi (Juli – Desember 2017)

Form that figure, we could se the dynamic partial productivity material of CMT Edi during the past 6 month but without considering the varian type of the product they produce.

**Table 4.16. Partial Material Productivity for each Model/ Month CMT Nur
(Juli – Desember 2017)**

BULAN	MODEL	TOTAL INPUT	TOTAL OUTPUT	PP
Juli	Maroko	4328	4328	1,000
	Total	4328	4328	1,000
Agustus	Maroko	1408	1405	0,998
	Sarung	22205	21800	0,982
	S.E.	3320	3313	0,998
	Jas	1288	1275	0,990
	Total	28221	27793	0,985
September	Sarung	17757	17552	0,988
	S.E.	1545	1543	0,999
	Jas	288	287	0,997
	Normal	768	765	0,996
	Makanda	360	360	1,000
	BD.B	600	600	1,000
	Total	21318	21107	0,990
Oktober	Sarung	3636	3618	0,995
	Jas	220	219	0,995
	Normal	1188	1188	1,000
	BB Satin	2394	2388	0,997
	No Hood	312	308	0,987
	BD.B	1712	1709	0,998
	BD.D	1913	1912	0,999
	KRD	900	898	0,998
	Total	12275	12240	0,997
November	BB Satin	17565	16342	0,930
	No Hood	120	118	0,983
	BBP	864	857	0,992
	1 Pkt. R	960	952	0,992
	AZ 47 1 P.R	738	738	1,000

Continue

	Total	20247	19007	0,939
Desember	Sarung	3803	3772	0,992
	S.E.	840	837	0,996
	BB Satin	6514	6455	0,991
	BBP	1440	1433	0,995
	1 Pkt. R	720	716	0,994
	KLB	3240	2228	0,688
	Butterfly	1073	1067	0,994
	Total	17630	16508	0,936

That data above is gotten from calculation of recaping material in and out of each model of CMT Nur in the past 6 months. After get the data, student sum up each same model for each months, and calculate the productivity where it is ouput material divided by the input material.

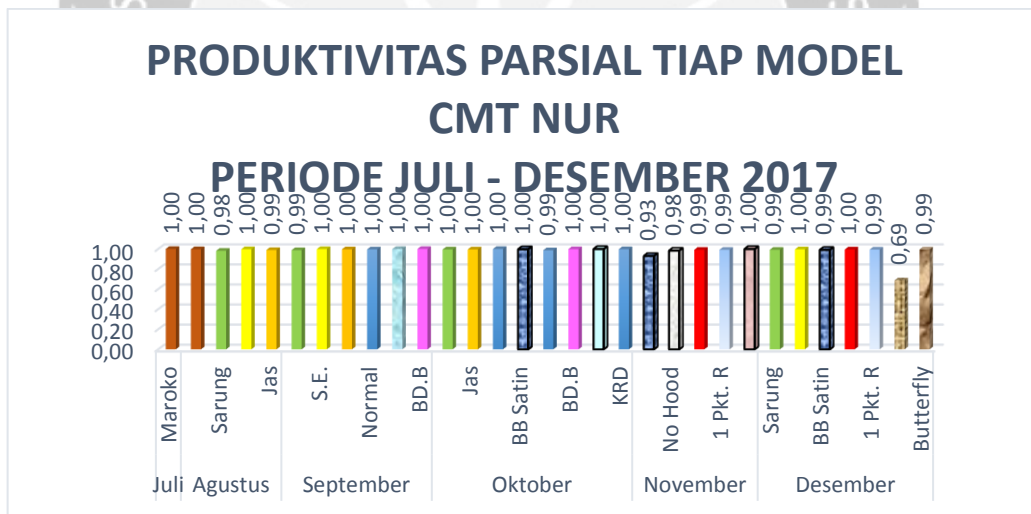


Figure 4.12. Histogram of Partial Material Productivity for each Model/ Month CMT Nur (Juli – Desember 2017)

From that graphic, we could know the dynamics partial material productivity for each model/ month by CMT Nur in the 6 moths. It is cnducted from the previous productivity calculation table of CMT Nur.

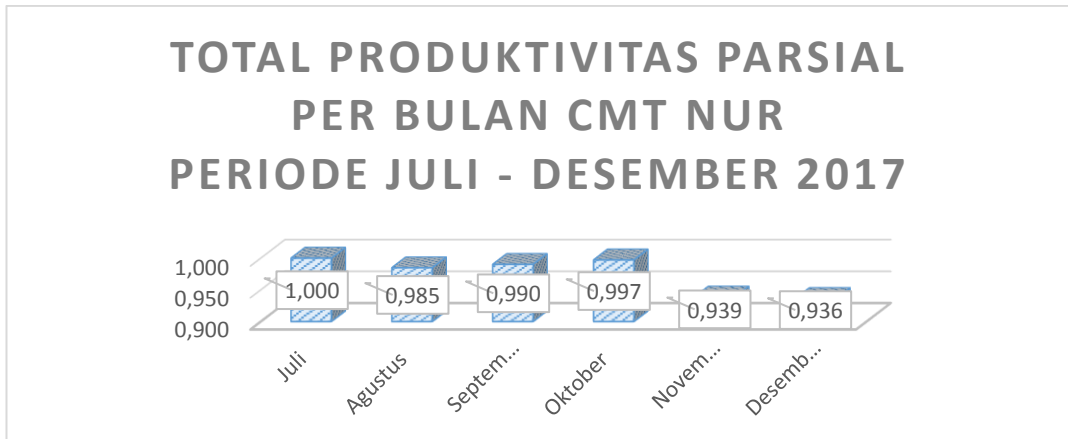


Figure 4.13. Histogram of Total Partial Material Productivity for each Month CMT Nur (Juli – Desember 2017)

From that figure, we could see the dynamic partial productivity material of CMT Nur during the past 6 months but without considering the variance type of the product they produce.

ii. Combined data of each CMT per months

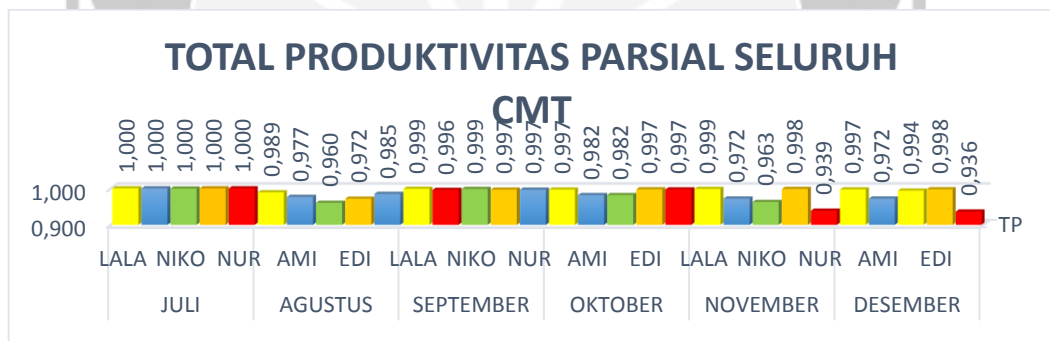


Figure 4.14. Histogram of Combined data of each CMT per months (Juli – Desember 2017)

Based on the graphic above, we could see that the productivity of each CMT is different for each month, the maximum material partial productivity is one.

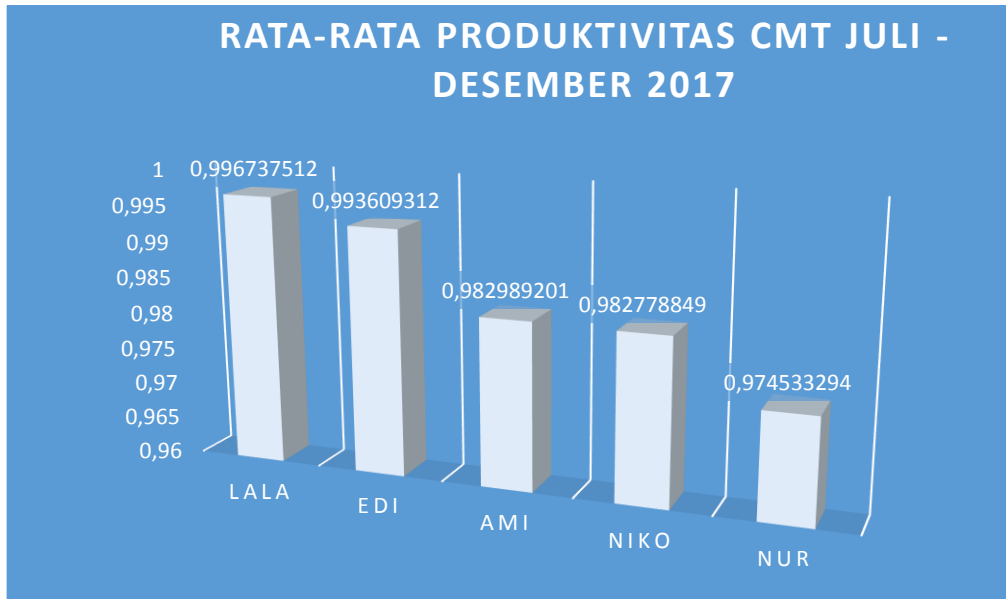


Figure 4.15. Histogram of Average partial productivity material data of each CMT (Juli – Desember 2017)

Based on that data, we could see that the greatest average partial productivity is CMT Lala, followed by Edi, Ami, Niko, and Nur. But, in the fact, the company thnks that the best CMT is CMT Nur and Edi. An error calculation could happen because the data is taken from report of HRD staff, and there is high possibility that the data input is wrong. But, if we could see, the factor that make big differences between them all is the capability of each CMT to produce many variant of products. If they just focus on few type of products, then the productivity is high, but the productiivity will be low when they should work for many kind of type of products, because from one type to another type need time to adapat and learn again from the beginning, so itcould have high possibility to produce defect product.

d. FMEA Analysis to Evaluate Failure of each Departments

Table 4.17. FMEA Analysis

No.	Departments	Field	Potential Failure Mode(s)	Potential Causes of Failure	Potential Effect (s) of Failure	Severity	Occurence	Detection	RPN
1	Design	Tracer	The size of the design does not meet the spesification	Negligence of the employee, meticulous less	Inhibit time and flow of production (mainly production sample), creating defect when printing	6	8	2	96
			send the design number wrong			5	7	1	35
			Joint/connection on the design does not meet the spesification			7	7	3	147
2	Screen	Template Screen	loose screen template	Negligence of the employee	Inhibit time, low quality of the printing.	4	2	1	8
		Coating	Bad photo emulsion quality and bad coating process			4	3	2	24

Continue

		Engraving	Bad printing result quality	The ink is clogged, the printer is stuck	Inhibit time, low quality of the printing.	6	4	1	24
		Burning	The design can not be cleaned well	burning for too long		4	3	3	36
3	Production Planning	Grey Fabric Requirement Report	wrong inputing data of raw fabric needs report	Negligence of the employee, meticulous less, miscommunication, possibility of the order to change	Inhibit time, the data is not yet sync	7	1	1	7
			Wrong in counting stock opname data			3	4	9	108
		Planning Printing	Error on making production palnning when the design of the order changes			7	2	3	42
			Error writing color/motif/type (KM/TEX) in Printing Job Instruction Sheet			7	2	5	70
			The error calculation of the fabric needs when there are additional requests in Job Instruction Sheet			7	4	3	84

Continue

4	Administration	Purchase Order Report, Production & Raw Material Report	Late sending a Purchase Order (PO) to a Supplier	Negligence of the employee, meticulous less	Inhibit time, raw	8	4	2	64
			Late giving daily reports of the use of materials to the Accounting		material cost become	2	7	2	28
			Wrong when inputting and counting the data on the Purchase Order		high, out of stock	3	3	4	36
		Raw Material Inventory Stock Report	Wrong in calculating amount of inventory stock	Negligence of the employee, meticulous less	Raw material cost	4	2	2	16
			wrong to input the data		become high, out of stock	4	5	2	40
		Printing Report	wrong to calculate the printing result	Negligence meticulous less, writing type of each person are different	Inhibit time, the data is	7	8	2	112
			wrong to give the delivery letter towards QC Dept		not yet sync	5	1	2	10

Continue

			Not focus on recaping the colour of printing result			4	7	2	56
	Cutting Report		Not be careful/ not update the available cutting material ready to be out in the report	Negligence of the employee, meticulous less, miscommunication with the cutting and packaging dept.	inhibit the flow to sewing and packaging	8	2	6	96
			wrong in writing the article and the size in the report			4	3	2	24
			Miss in writing the packaging quantity result			4	3	2	24
			wrong when inputing and calculating data in the report			3	4	2	24
		CMT and Packaging Report				wrong in recaping material data stock to the CMT	Negligence of the employee, meticulous less	not accurate in paying CMT services	8
			wrong in making delivery letter (surat jalan)	6	2	2			24

Continue

			not be careful when re-checking the packing list and make report towards accounting department			6	2	2	24
	Accessories Report	wrong in calculating the accessories in and out.	meticulous less	inhibit the flow to sewing and packaging		2	6	5	60
	HRD and Attendance Presence	forget to ask the formal permission letter	Negligence of the employee, meticulous less	affect laborer's salary,		2	6	1	12
		wrong to input cutting material stock to the CMT data stock		inhibit the flow to sewing and packaging		3	7	2	42

Continue

5	Production Floor	Scouring (Raw Fabric Washing)	Not yet clean	Negligence of the employee, meticulous less	Inhibit time and flow of production, increasing production cost, <i>defect product</i>	5	5	4	100
			the fabric is torn			9	5	1	45
		Stentering	printing result is not straight	Negligence of the employee, the speed is already high when the heat is not yet reach the standard	Inhibit time and flow of production, increasing production cost, defect product	8	9	2	144
			the fabric is torn			9	7	1	63
			wrong in setting the width and the length of the fabric			8	7	2	112
			the fabric still wet because less f controlling			7	5	2	70
		"Kelir"	wrong processing type of the fabric	Negligence of the employee, meticulous less	Inhibit flow of production, can't reach the target,	5	3	3	45
			wrong in counting			7	3	4	84

Continue

			<i>Stick Steamer</i> falls down		Inhibit time and flow of production, stripes, can't absorb the color well	7	7	2	98
		Steamer	fixation function on steamer not working properly	Negligence of the employee, temperature not yet stable		5	3	3	45
		Silinder <i>Dryer</i>	the fabric is torn	Negligence of the employee, machine breakdown, fabric is not dry yet	Inhibit time and flow of production, torn, not as expected	8	3	1	24
			the fabric is not smooth			9	3	2	54
		Printing Fabric Washing	staining in the fabric	Negligence of the employee	Inhibit time and flow of production, torn, not as expected	9	7	1	63
			the fabric is torn			8	3	1	24
		Printing	miscommunication about the instruction	Negligence of the employee,	Inhibit time and flow of	8	9	2	144

			the fabric is torn	meticulous less, bad quality, less machine maintenance	production, torn, not as expected, rewashing, increasing production cost	7	9	2	126
			there is bad spot in the fabric			7	7	3	147
			machine performance is unstable			5	6	6	180
			quality of the chemical reaction and the grey fabric is bad			7	5	5	175
			machine is broken			8	4	1	32
6	QC & Cutting	QC Roll Fabric & Printing Pabric	not be careful to do inspection especially in stains, holes, stripes	Negligence of the employee, meticulous less	increasing unexpected waste	7	5	2	70
			wrong in making inspection report			3	4	2	24
		Delivery Letter (surat jalan)	wrong to calculate the amount of packaging fabric to be transfered to Karet, Jakarta			7	5	2	70

Continue

			wrong data in making cutting delivery letter			3	7	2	42
			wrong data in making inspection delivery letter			3	2	2	12
			wrong in writing Tex/ KM and color for the CMTs			6	5	3	90
		Cutting	wrong cutting quantity	inhibit the flow to sewing and packaging, increasing unexpected waste		5	5	2	50
			wrong to cut type/ model of the fabric			6	2	2	24
			wrong to write the size and put on the sticker			6	5	2	60
		QC Sewing	wrong to give revised instruction to the CMTs	not accurate in paying CMT services cost		3	7	5	105
			wrong to give completion information of a dress lady			4	7	5	140

Continue

7	Packaging	Folding and Arranging finish product	wrong to write down the article in the packaging ball	Negligence of the employee, meticulous less, low motivation to work	inhibit delivery process to the final warehouse (Gudang Timur)	8	3	4	96
			wrong to count the packaging quantity			4	5	2	40
			the worker go home when actually it's time to do overtime			3	6	1	18
8	Warehouse	Shipment	missing the amount of packaging ball of the products	Negligence of the employee, meticulous less, miscommunication	Inhibit delivery process to the buyer, unsatisfied buyer	7	3	2	42
			there is a difference between the data in the warehouse and in the delivery letter			4	6	1	24

Table 4.18. Severity, Occurrence, detection Rating

Severity Rating		
Effect	Severity of Effect	Rank
Very dangerous	Errors can cause very high losses	10
Very dangerous	Errors can cause high losses	9 -- 8
Dangerous	Errors can cause moderate to high losses	7
Dangerous medium	Errors can cause moderate losses	6 -- 5
Harmful mild to moderate	Errors can cause mild losses	4 -- 3
Dangerous light	Errors can cause minor losses	2
Not harmful	Errors do not cause harm	1

Occurance Rating		
Possibility Occur	Criteria	Rank
Can be confirmed	Mistakes occur at least once a day	10

Continue

Unavoidable	Errors can be predicted to occur or occur every 3 to 4 days	9
very high	Mistakes often occur or occur at least once a week	8 -- 7
medium height	The error occurs once a month	6 -- 5
medium	Mistakes sometimes happen, or once every three months	4 -- 3
low	Mistakes are rare, about once a year	2
very low	Mistakes almost never happen, do not remember the last time	1

Detection Rating		
Level	Criteria	Rank

Continue

1	Very High	It must be detected
2 -- 5	High	Easy to detect
6 -- 8	Moderate	Rarely detected
9	Low	Difficult to detect
10	Very Low	Can not be detected

So, basically as the student mention in the methodology, student conduct interview with each department of PT. Hadiputra gemilang. After conducting some questions, student begin to ask the person in charge to give rank about the severity, occurrence, and detection, according to the standard that the student make below.

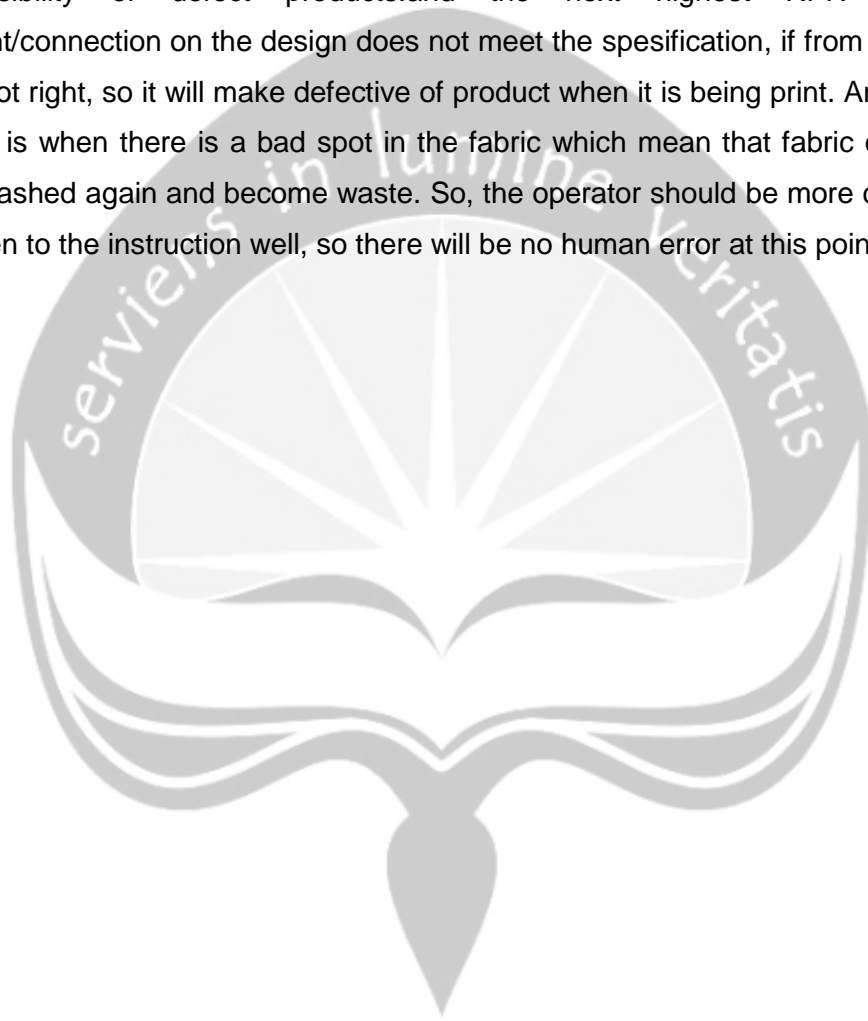
First is, assess the potential impact of errors and evaluate levels severity. This process assesses how bad the impact is given by potential errors. The severity is assessed from scale from 1 to 10, starting from no effect until it has a effect dangerous.

Second step is, determine potential causes of failure and check for events (Occurrence). Occurrence is an opportunity for error, determined based on a period of time with a scale of 1 to ten of which have never been to the most frequent.

The third step is controlling for prevention and verifying effectiveness control to detect (Detection). This stage is judging the extent to which potential errors can be prevented. Assessment performed from a value of 1 to 10, from almost certainly detected to nearly no undetected error will occur.

The last step is calculates all of the risk priority number (RPN). RPN is useful for evaluating the risk of error obtained from multiplying the three factors ie severity, occurrence and detection. So in this step, the student multiply the rank of severity

times occurrence, times detection. And the biggest RPN is in when the machine performance is unstable and quality of the raw material and chemical is bad. So, the student give suggestion to the company to always keep maintenance periodically to the machine, because they seldom keep on the maintenance, so the machine will be stable and ready to be used anytime. The second is to choose the right supplier with not only low price, but also high quality. Because if from the fabric it self has bad quality, it will affect all over the process and can cause high possibility of defect products. and the next highest RPN is when Joint/connection on the design does not meet the specification, if from the design is not right, so it will make defective of product when it is being print. And also the last is when there is a bad spot in the fabric which mean that fabric can not be rewashed again and become waste. So, the operator should be more careful and listen to the instruction well, so there will be no human error at this point.



e. **Analysis using New Accessories Stock Data Form**

4.19. Analysis using New Accessories Stock Data Form

NO	PITA KUNING	Quantity (pcs) - JANUARI 2018																															Total	Sisa			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
1	SUR - BB Satin				300								400																							700	
	KM 8855					300									390																					690	
2	MDF - BB Satin								500										650																	1150	
	KM 8860										500											650															1150
																																					0

So, by using this new form, the laborer/ staff can be more easily fill the quantity and time when the material of accessories in (transferred from Karet) or out (transferred to the CMT). This can be used for many order, but it should be divided into each type of the accessories to make the operator becoming way more easier to found out. The to row (number with black colour) indicate the material in, the the lower row

(the number with red colour) indicate material out. And the number in the top is the date in one month, so the operator can mke report more clearly and becoming more careful to check the quantity of the accessories.



CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1. Conclusion

Based on assignment and result which conducted by student on the work practice in Production Planning Control of CMT at PT. Hadiputra Gemilang, so here is conclusion of work practical report:

- a. Production process in PT. Hadiputra Gemilang especially for production process in batik garment is good enough but it could be increase and evaluate continuously by all of departments.
- b. To make the production scheduling becoming more easy the company could determine the cycle time for each process first and use the planning board.
- c. For man problem, it can be manage by training and motivating the worker so the worker can be struggle in working area and give the best work.
- d. Productivity partial can show the dynamic productivity of each CMT, but only for the material productivity.
- e. The biggest problem that make the production is distubed is miscommunication between one department with another department.
- f. The machine should be maintenance periodically.
- g. The written Standard Operating Procedure must be distributed in every level of worker so when there exist problem it can be easily evaluate.

5.2. Recommendation

- a. It is better to hshared the data planning online, so the internal department could know and understand well to minimize the miscommunication.
- b. The scheduling process both for CMT and Production Planing for Printig should cooperate well and back up each other.
- c. Do the inspection in the beginning also, for the raw of material, so it won't beome defective of products.
- d. The instruction and regulation should be more stricts, so the employee will obey the rule well.

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**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta
Catatan Harian Pelaksanaan Kerja Praktok**

No.	HARI, TANGGAL	JAM	KEGIATAN	TANDA TANGAN & STEMPEL PERUSAHAAN
1.	Senin, 18/12-17	07.00-09.00	Tur keliling produksi kain batik di area produksi pabrik dikimbing Bapak Wahid. Tur dari produksi meliputi departemen scanning, stenter, pemartaban & printing.	
09.00-12.00	Pembagian materi mengenai divisi purchasing, laporan produksi, dan stok bahan baku lebih dalam bersama Ibu Ida.			
12.00-13.00	ISTIRAHAT			
13.00-15.00	Keliling area Warehouse 10 untuk mengetahui penyimpanan barang, proses cutting, inspeksi, calender.			
15.00-17.00	Keliling lantai 2 mengenai proses packaging, labelling, & inspeksi			
<p>Catatan penting harian:</p> <ul style="list-style-type: none"> Scoring = kain mentah → dituang kandungan fatty → masih keras → material handling ke stenter. Stenter (mesin setting): pengeringan → penentuan lebar kain & sub? kain → jadi lembar/kambut pemartaban: terdapat counter → butuh berapa meter → Handai → kain <u>cauon</u> → ready for print Printing = pengecatan/kablon. Unsur: kain lembuk, warna, screen/matik, mesin. Sumber energi: boiler upQ boiler oli. Kerdala: Barang ready, container full, kedar bici booking. Terdapat 3 shift. shift 1 (7am-13pm), shift 2 (1pm-12pm), shift 3 (12pm-7am) Jakuh tempo/supplier berbeda, tidak ada penalti jika melebihi tempo delivery → purchase order & by phone → negosiasi supplier oleh Bapak Hendra → kurs rajak berubah tiap minggu (Rabu) → Air oleh Bapak Subendra → Ibu Ida mengurus pembelian barang untuk kerstyle (kain dan obat) → batu Padat karya → contract manufacturing → MTO system → TMT → no order push system <p>Catatan dari pembimbing lapangan:</p>				

Lampiran 2. Lembar Bimbingan Pelaksanaan dan Penyusunan Laporan Kerja Praktek (QSR No. 086-QSR/Ind-FTI-UAJY/18-VIII/2017)

**Program Studi Teknik Industri Universitas Atma Jaya Yogyakarta
Lembar Bimbingan Pelaksanaan dan Penyusunan
Laporan Kerja Praktek/ Magang**

Nama Mahasiswa : Billa Oktina Tinugraheni
NPM : 151408568
Perusahaan tempat KP : PT. Hadiputra Semilang
Tanggal pelaksanaan KP : 18 Desember 2017 - 23 Januari 2018
Dosen Pembimbing : Ir. B. Kristyanto, M. Eng., Ph. D.

No	Tanggal	Agenda	Tanda Tangan Dosen Pembimbing
1	01/02/18	Penyerahan surat pembimbingan dan Konsultasi persiapan Kerja Praktek	
2		Laporan atau konsultasi penugasan dari perusahaan	
3	15/2/18	Laporan pertama setelah pelaksanaan Kerja Praktek dan konsultasi penyusunan laporan	
4	12/4/18	Penyerahan draft laporan Kerja Praktek untuk pertama kali	
5	14/5/18	Pengesahan laporan Kerja Praktek	