INDUSTRIAL PRACTICE REPORT
IN PT. KANISIUS

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INTERNATIONAL INDUSTRIAL ENGINEERING PROGRAM
FACULTY OF INDUSTRIAL TECHNOLOGY
UNIVERSITAS ATMA JAYA YOGYAKARTA

2018

HALAMAN PENGESAHAN

Laporan Kerja Praktek yang dilaksanakan di PT. Kanisius mulai tanggal 8 Januari 2018 sampai dengan 10 Febuari 2018 disusun oleh::

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Program Studi	: Teknik Industri Kelas Internasional
Fakultas	: Teknologi Industri

telah diperiksa dan disetujui.

Yogyakarta, 5 Maret 2018

Pembimbing Lapangan	Dosen Pembimbing
Y. Pria Sasongko	Dr. Parama Kartika Dewa, S.T., M.T.

SURAT KETERANGAN

No. 100/SDM/RB/II/2018

Yang bertanda tangan di bawah ini :

Nama	: Danang Afriady Kurnianto
Jabatan	: Kepala Bagian Perencanaan dan Pengembangan SDM
Nama perusahaan	: PT KANISIUS
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Menerangkan bahwa :

Nama	: Melia Putri Handayani
NIM	: 141407822
Jurusan	: Teknik Industri

Telah melaksanakan Praktik Kerja di PT KANISIUS mulai tanggal 8 Januari 2018 - 10 Februari 2018 di bagian PPIC JSA dan Ekspedisi.

Demikian surat keterangan ini kami sampaikan. Atas kepercayaan yang diberikan kami ucapkan terima kasih.

Yogyakarta, 13 Februari 2018

Hormat kami,

Danang Afriady K

Kabag Perencanaan SDM

PREFACE

Industrial practice is one of academic requirements in the curriculum of International Industrial Engineering Program, Universitas Atma Jaya Yogyakarta and it accomplished by completing the industrial practice report. In this report, author reported all process that is done during industrial practice period which can explains how the student reach the goal of the industrial practice itself.

Author would like to thank God for His blessing during the industrial practice period until accomplishment of this activity so that the report can be prepared well and submitted on time.

During the completion of this activity, author has also been given a lot of motivation, support, and also guidance by all parties, and in this occasion, author would like to express the gratitude to:

1. Family members who always give all of support and motivation everyday during industrial practice.
2. Mr. V. Ariyono, S.T., M.T. as Head of Department of Industrial Engineering.
3. Mrs. Deny Ratna Yuniartha, S.T., M.T. as the Coordinator of Internship.
4. Mrs. Ririn Diar Astanti, S.T., M.MT., Dr. Eng as Coordinator of International Industrial Engineering Program.
5. Dr. Parama Kartika Dewa, S.T., M.T. as the Faculty Supervisor for his supervisee during the process of industrial practice and the preparation of this report.
6. Mr. Pria Sasongko as the On-site Supervisor and also the Head of Sub-department of PPIC, JSA-Expedition Team.
7. Mr. Anton Aryana as the HRD Staff who did the recruitment for the student to do industrial practice in PT. Kanisius.
8. Mrs. Budiastuti as the Head of Percetakan Division and Head of PPIC Department.
9. Mr. Bambang, Mr. Eko, Mr. Febru, Mr. Avid, Mr. Yuli, Mr. Agung, the member of JSA (Job Scheduler & Analyzer) and Expedition Team.
10. Zaniar Rukmana Putri as team-mate during industrial practice.

Industrial Practice in PT. Kanisius from January 8th, 2018until February 10th, 2018 has been completed and the industrial practice report has also been prepared and done on time.

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CHAPTER 1
INTRODUCTION

Chapter 1 explains background and purposes of Industrial Practice activity as the implementation of industrial engineering studies in International Industrial Engineering Program, Universitas Atma Jaya Yogyakarta. Moreover, there will be an explanation about student's tasks in the company during the Industrial Practice period and the period of this activity.

1.1. Background

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

The paradigm of the internship 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 internship the students do some activities to enhance their understanding in term of planning, designing, improving, implementing and problem-solving. Therefore, during the internship period students are requested to:

a. Doing all the tasks that have been assigned by the host company
b. Following all of the 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 internship the students should relate all of their activities in term of system perspective. Based on the explanation above, it is clearly seen that internship is not only gathering the data.

1.2. Objectives

The aims of the internship 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 of 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. Location and Time of Industrial Practice

This Industrial Practice was done in PT. Kanisius (Printing and Publishing) located in Jalan Cempaka No. 9, Deresan, Depok, Sleman, Daerah Istimewa Yogyakarta 55281. The period of the Industrial Practice was from January 8th, 2018 until February 10th, 2018.

The student is assigned to the JSA (Job Scheduler and Analyzer) and Expedition, the PPIC (*Production Planning and Inventory Control*) Department, *Percetakan* Division. However, the student also did another task to support Pre-printing team in the plate-making process and also helped PPIC-Logistics sub-department to collect some data of plates in plate warehouse. During the industrial practice, there are also some projects given by the On-site Supervisor (Head of PPIC JSA-Expedition), Pak Pria Sasongko and the Head of PPIC Department which also the Division Manager, Bu Budiastuti, which mostly about data collection, data analysis, and data management in the company.

The working time for Industrial Practice student in PT. Kanisius is 7.30 WIB - 11.00 WIB for weekdays and 07.30 WIB - 12.30 WIB for Saturday. All employees must come to the office before 07.30 WIB because at that time the morning prayer begins.

CHAPTER 2
COMPANY OVERVIEW

This chapter 2 describes the general description of the company where the Industrial Practice is carried out. Also described the overall company system and a more detailed explanation of the department where students carry out Industrial Practice activity.

2.1 History of PT. Kanisius

PT. Kanisius is one of Kanisius Foundation's business in the field of book publishing and printing (offset and digital). PT. Kanisius is committed to empowering the nation and the church through education, therefore, it focuses on publishing and printing books in the field of *Kependidikan Umum* and *Gerejawi*.

According to historical records, Kanisius Printing was first established in Yogyakarta on January 26, 1922, under the name Canisius Drukker'j. Canisius Drukker'j was one of the missionary works of the Kanisius Foundation which was then called Canisius Vereniging (Association of Canisius) founded by Father Franciscus Georgius Josephus van Lith in 1918.

Figure 2.1. Canisius Drukker'j in 1922 (Source: pressreader.com)

Canisius Drukker'j, as known as Kanisius Printing, is an initiative of Superior Missionary, Pastor J. Hoeberechts, SJ. At first, Canisius Drukker'j was a small printing press that printed books for the benefit of church worship and educational books to meet the needs of the native students in Yogyakarta and beyond. At the time of its establishment, the main mission of Canisius Drukker'j was to become a printing press that could provide textbooks for schools and prayer books for the Catholic Church all over Indonesia.

Then in 1928, Canisius Drukker'j also printed magazines, such as Tamtama Dalem and Swaratama that contributed a lot to the movement of young people in the independence era. After Indonesia became independent, Kanisius Printing gained the trust of the Indonesian government at that time to print Indonesian bank notes called *ORI (Oeang Republik Indonesia).*

Entering the 1970s, *Penerbit dan Percetakan* Kanisius run by the Jesuit priest began to cooperate with common people (in Indonesia called *awam*), and modernization developed well in this period. This step is contributed a great impact in the development of human resources and financial improvement in the company. There is also increasing the variety of books printed and published by this company.

Since January 1, 2014, *Penerbit dan Percetakan* Kanisius changed the form of its business entity into PT (*Perseroan Terbatas*) which was later called PT. Kanisius with the Jesuit Priest as its president director and common people in the organization structure. Until now, PT. Kanisius grew to publishers and printing that has customers from Sumatra to Papua.

2.2 Company Profile

This is the company profile where the practical work is done.

PT KANISIUS
Mengasah Budi Mengolah Hati

Figure 2.2. Logo of PT. Kanisius

Company Name	: PT. Kanisius
Industrial Classification	: Publishing and Printing (Offset and Digital)
Address	: Jalan Cempaka No. 9, Deresan, Depok, Sleman, Daerah Istimewa Yogyakarta 55281
Website	: www.kanisiusmedia.co.id
E-mail Address	: office@kanisiusmedia.com
Phone / Fax	: (0274) 588783; (0274) 565996 / (0274) 563349
President Director	: P. E. Azismardopo Subroto, SJ.
Director	: Sulistyorini
Number of Employee	: 332 orang

2.3 Organizational Structure

PT. Kanisius was led by a president director who was also a Jesuit and was a Father. Since its establishment era, PT. Kanisius is managed by the Kanisius Foundation under the supervision of the Jesuit. Therefore, Catholic culture such as upholding the attitude of serving, close family-like relations, and other Catholic religiosity culture applied at PT. Kanisius.

The coordinating line under the president director is a director who is a common people. After that, for the organizational structure under the directors, all are held by common people with different educational backgrounds. The figure of the Organizational Structure is shown in Appendix 1.

2.3.1. Overall Organizational Structure

PT. Kanisius has 5 main divisions with direct coordination line under the president director and the director. The function of each division as follows:

a. *Divisi Penerbitan*

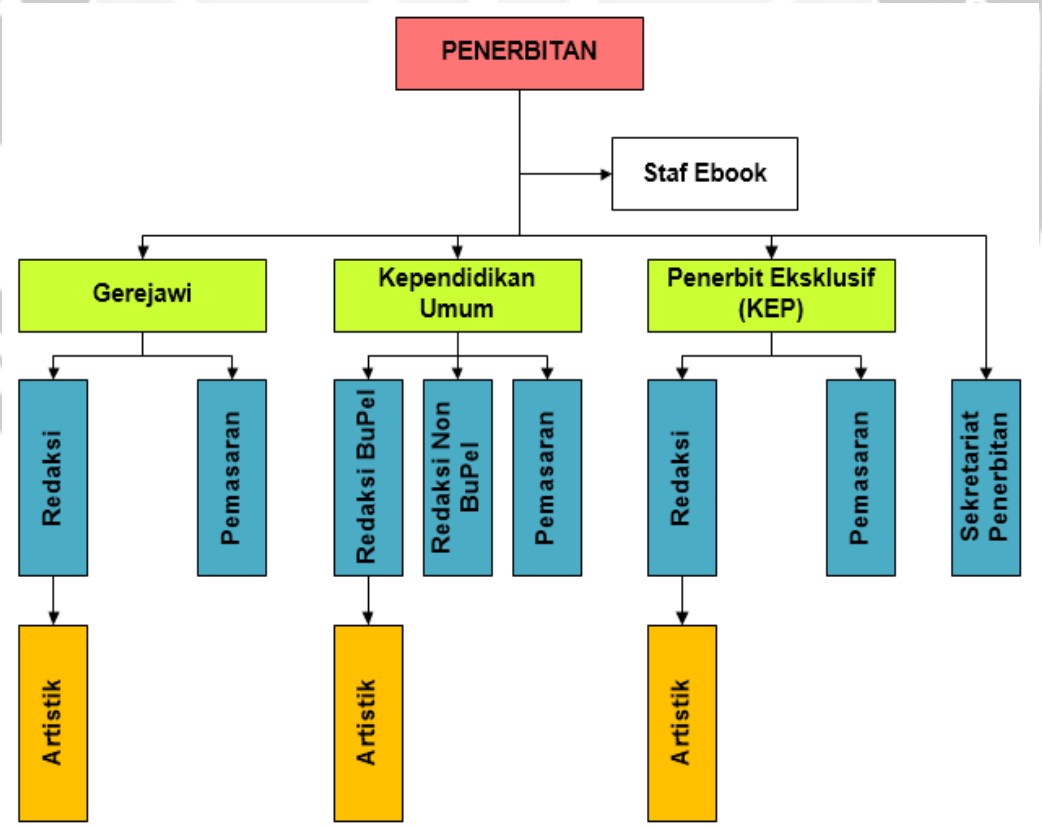


Figure 2.3. Organizational Structure of *Divisi Penerbiitan*

This division is responsible for all forms of book publishing that are published by PT. Kanisius. There are 3 departments within this division, the Department of *Gerejawi*, the Department of *Kependidikan Umum*, and the Department of *Penerbitan Eksklusif Kanisius* or Kanisius Exclusive Publishing (KEP).

The main task of this division is to plan the publication of books, such as finding authors who want to publish a book, compile book manuscripts, and book publishing. Before the publication, the division was also responsible for selecting the eligibility of the books for publication.

Tasks for departments also vary according to the classification of books published for each department. The Department of *Gerejawi* is responsible for the publication of spiritual books or in relation to Church needs, such as the Book of *Tata Perayaan Ekaristi*, *Madah Bakti*, the Bible, as well as sacramental handbooks for *Komuni Pertama*, *Sakramen Krisma,* and so on. There are also books of philosophy, theology, catechesis, spirituality, prayer and worship books, inspirational, and spiritual reading. Almost all books published by the Department of *Gerejawi* published by PT. Kanisius with the Church Commissions.

Department of *Kependidikan Umum* publishes 2 product groups under the category of *Buku Pelajaran (BuPel)* and *Non-Buku Pelajaran (Non-BuPel)*. Example of *BuPel* is a textbook from elementary to high school level such as Catholic religion textbooks, thematic books, and textbooks according to the applicable curriculum in Indonesia. There are also books for universities such as general courses and textbooks for various fields of study such as economics, education, psychology, law, language, and health. As for Non-BuPel covers children's and adult reading books, such as ideas books, inspirational books, general knowledge, and so on. It also publishes books for families and the general public, such as child care books, personal development, health, and skills.

For books published by the Department of *Penerbitan Eksklusif Kanisius* or Kanisius Exclusive Publishing (KEP) are special order books whose circulation amount or print quantity is less than 1000 copies. Examples are lecture books compiled by university lecturers, textbooks that are used only inside a school internally, autobiographical books (as special gifts), papers, work reflections, and so on. KEP customers come from various groups including institutions, communities, foundations, schools, colleges, lecturers, teachers, institutions, students, students, and freelance writers.

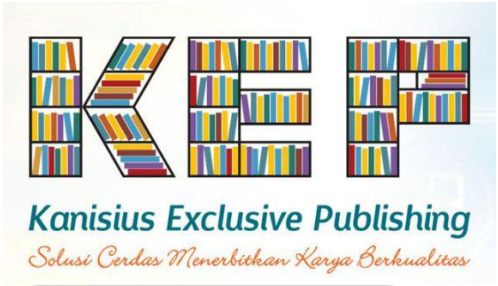


Figure 2.4. Logo of Kanisius Exclusive Publishing

(Source: kanisiusmedia.co.id)

b. Divisi Penjualan

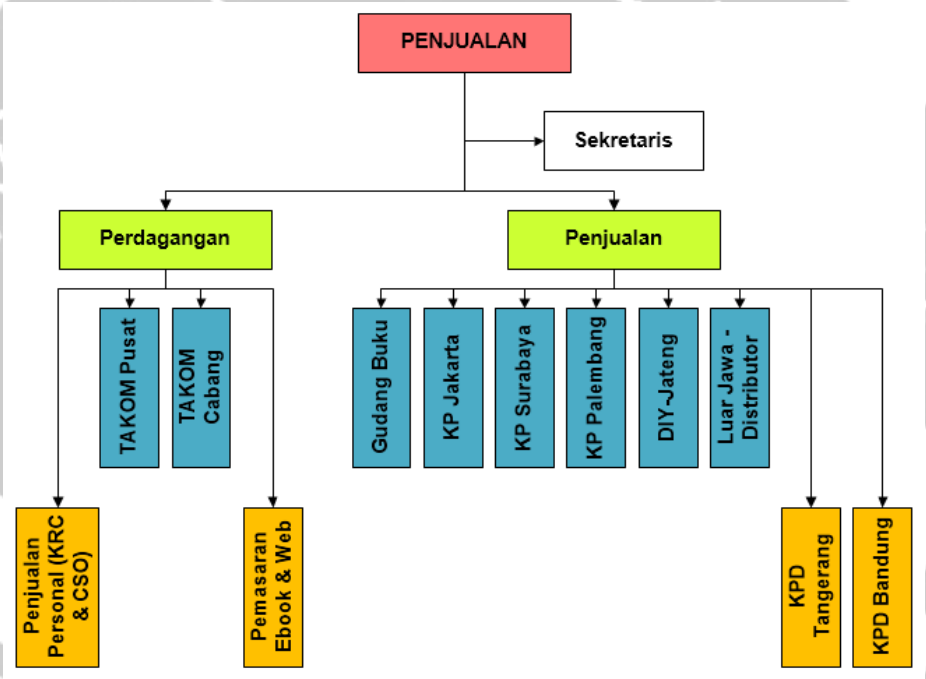


Figure 2.5. Organizational Structure of *Divisi Penjualan*

Divisi Penjualan is responsible for the sales process of all products manufactured at PT. Kanisius. Management and supervision of marketing offices of PT. Kanisius is scattered in various cities in Indonesia as well as sales of books in every marketing office done by this division. There are 2 departments within this division, the Department of *Perdagangan* and the Department of *Penjualan*.

Department of *Perdagangan* is responsible for the supply of goods sold in all showrooms owned by PT. Kanisius. Showroom owned by PT. Kanisius is called the *Taman Komunikasi* (TAKOM). TAKOM sells books, souvenirs, and spiritual tools. PT. Kanisius has several showrooms scattered in several cities in Indonesia that will be described in the Marketing System sub-chapter.

While the Department of *Penjualan* is the department responsible for selling Kanisius products in marketing offices throughout Indonesia as well as its distribution. The Department of *Penjualan* is also responsible for the book warehouse that is ready to be distributed. The book warehouse is located in the headquarters (Yogyakarta) and the stock of books in the book warehouse is obtained directly from the *Divisi Percetakan* located in the same office. The stock of this book should be well managed to meet market demand.

c. Divisi SDM Sarpras (Sumber Daya Manusia dan Sarana Prasarana)

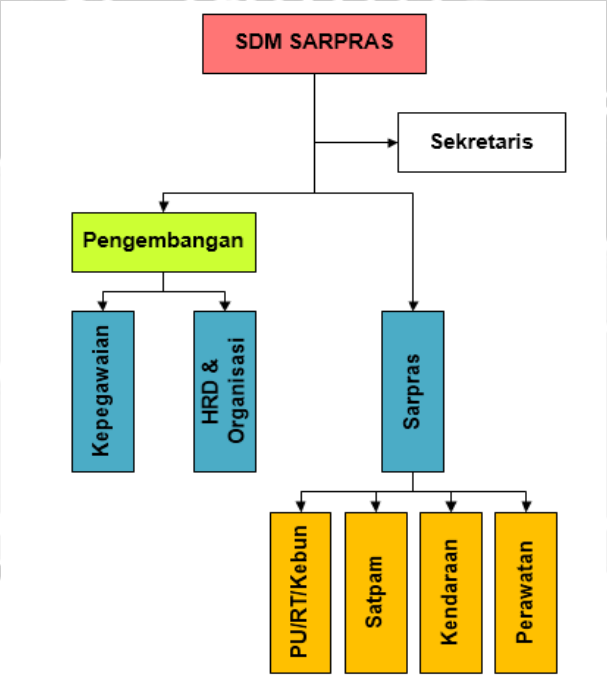


Figure 2.6. Organizational *Structure* of *Divisi SDM Sarpras*

Divisi SDM Sarpras (Human Resource and Company Facility) is the division responsible for human resource management and management of company facility in PT. Kanisius. The process of hiring company employees and training for employees is the responsibility of this division. In addition, the division also takes care of the company's internal activities such as gatherings, competitions, corporate birthday parties, and similar activities. This division is also responsible for managing the compensation system of all employees of PT. Kanisius. All facilities that support activities at PT. Kanisius such as parks, canteens, offices, toilets, and office vehicles are also managed by this division, including recruitment of workers who assist the management of company facilities in the company.

d. Divisi Keuangan

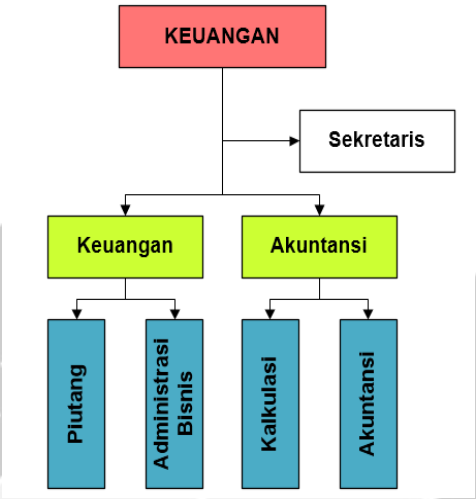


Figure 2.7. Organizational Structure of *Divisi Keuangan*

Divisi Keuangan is responsible for financial and administrative affairs at PT. Kanisius. This division consists of 2 departments, namely Department of *Keuangan* and Department of *Akuntansi*. Department of *Keuangan* is responsible for managing corporate receivables as well as the business administration of the company. While the Department of *Akuntansi* served in the calculation of corporate finance and bookkeeping company.

e. Divisi Percetakan

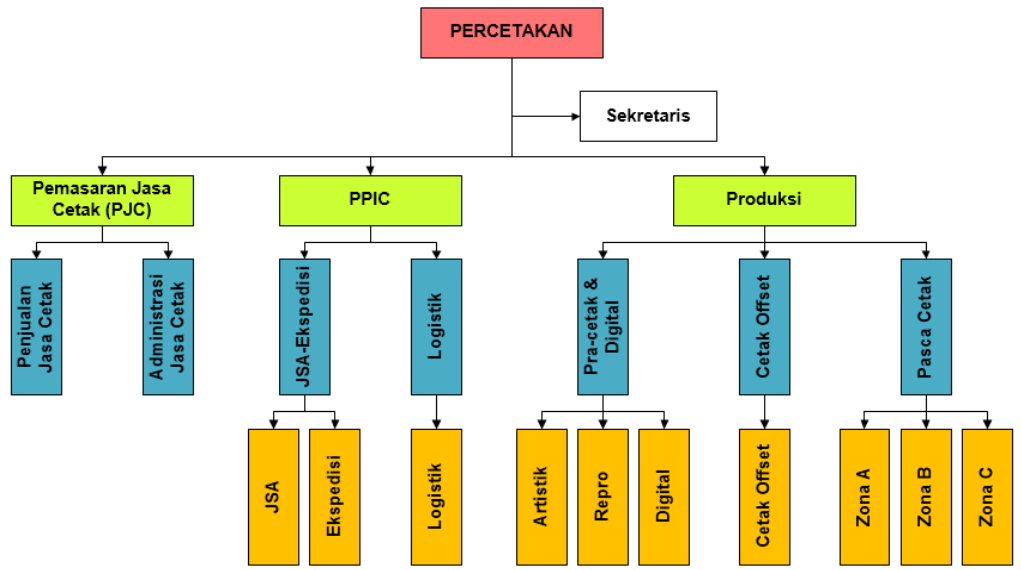


Figure 2.8. Organizational Structure of *Divisi Percetakan*

Divisi Percetakan is the division responsible for the main activity in PT. Kanisius, a print production that includes offset and digital printing.

This division is responsible for all kinds of printing processes ranging from raw material procurement until the shipments of finished products to the customers. There are 3 departments within this division, namely Department of *Pemasaran Jasa Cetak* (PJC), Departmen of PPIC (Production Planning and Inventory Control), and Department of *Produksi*.

Department of *Pemasaran Jasa Cetak* (PJC) is a department responsible for marketing print services at PT. Kanisius. This department consists of 2 sub-departments, namely Sub-department of *Penjualan Jasa Cetak* consisting of sales team who market services PT. Kanisius and Sub-department of *Administrasi* that manages documents of print services that enter at PT. Kanisius. This department has an important role in finding potential customers, especially customers with circulation or the number of big orders that become the main income for PT. Kanisius. Customers will deal directly with the PJC team in ordering orders, determining the desired product specifications and price negotiations.

After PJC customers and teams agree with the order to be requested, then the PPIC Department is responsible for fulfilling the request and then planning the whole production process of each order. The entire production process in question starts from the procurement of raw materials to the delivery schedule of finished products to customers. The main target is to manage the entire production schedule with the agreed targets within the time set so as to achieve customer satisfaction. The department is also authorized to determine the gentle timing of employees on the production floor when additional time must be added to pursue the target from incoming orders.

Then, Department of *Produksi* has the duty to execute the production planning made by the Department of PPIC and as much as possible to follow the scheduling already made, so that every order can be received by the customer in the right amount, time and quality on demand. In this department there are many machines used in the processing of raw materials to be finished products. The offset printing process undertaken by this department includes the pre-printing process (plate making process and plate imposition), the printing process, and the post-printing process (covering various finishing processes). There is also a digital printing process in a separate unit.

2.3.2. Organizational Structure of Department of PPIC

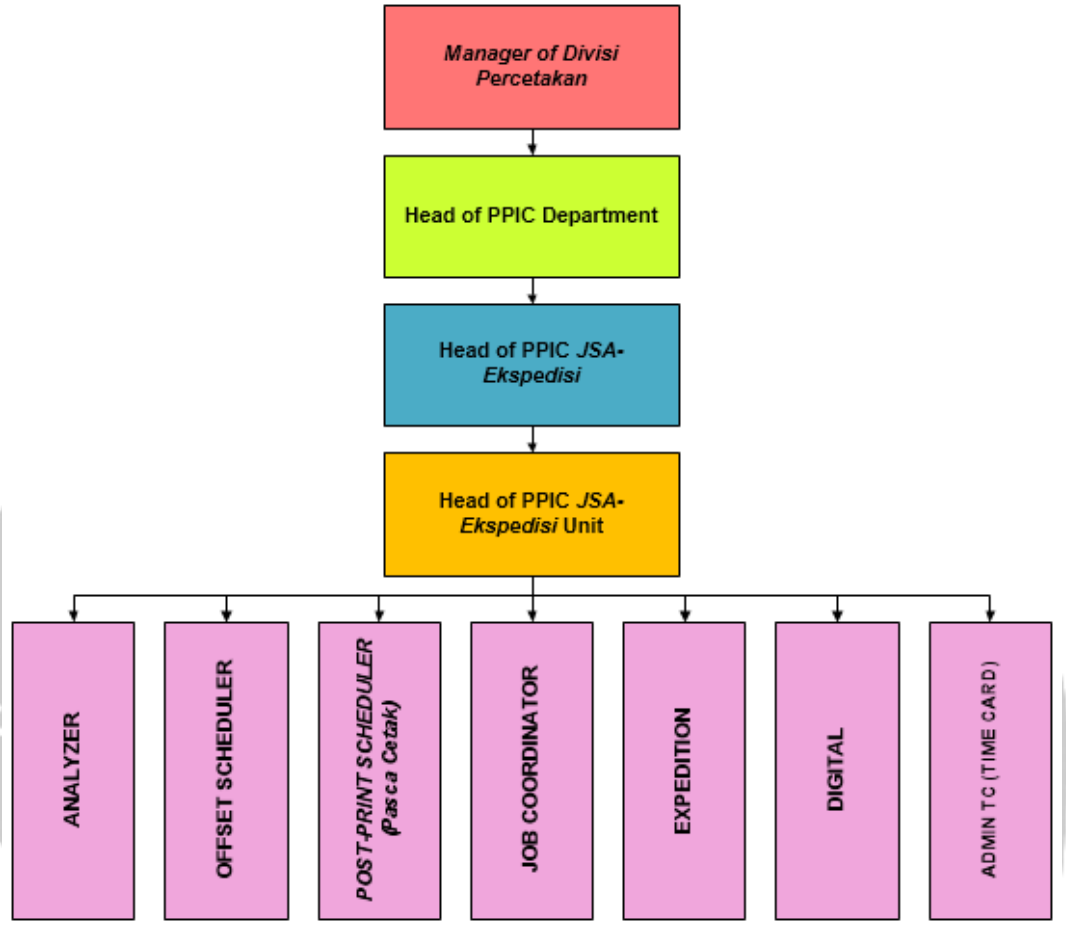


Figure 2.9. Coordination Line of Sub-Departmet of *JSA-Ekspedisi*

The figure above shows the coordination line of the Sub-department of Job Scheduler and Analyzer *(JSA)-Ekspedisi* where students are placed during the period of practical work. Manager of *Divisi Percetakan*, Mrs. Budiastuti also works as Head of Department of PPIC. Then, one sub-department of this department, the *JSA-Ekspedisi* Unit is headed by Mr. Pria Sasongko. Underneath is the Head of *JSA-Ekspedisi* Unit, namely Mr. Bambang Supriatno oversees the functions as in the picture.

2.3.3. Job Description of Department of PPIC

a. Manager of *Divisi Percetakan* and Head of Department of PPIC

Mrs. Budiastuti serves as Manager of *Divisi Percetakan* as well as Head of Department of PPIC. Her job as Manager of *Divisi Percetakan* as well as Head of Department of PPIC is to control all departments and departments in the *Divisi Percetakan* in order to meet the demand.

b. Head of Sub-department of *JSA-Ekspedisi*

The Head of Sub-department of *JSA-Ekspedisi* is Mr. Pria Sasongko who is also the On-site Supervisor of the industrial practice students. The task of the Head of Sub-department of *JSA-Ekspedisi* is to coordinate together with the Head Unit and all functions within the Sub-department of *JSA-Ekspedisi* to manage all production processes. Every day, the head of each sub-department will lead a brief briefing before commencing all work activities that day by evaluating the performance of each function and tracking the production flow achieved the previous day and ensuring that all functions in the Sub-department of *JSA-Ekspedisi* are ready to perform their respective tasks on that day.

c. Head of *JSA-Ekspedisi* Unit

Head of *JSA-Ekspedisi* Unit who also has a role as Head of *Ekspedisi* Unit, is Mr. Bambang Suprianto. The task is almost the same as the Head of Sub-department *JSA-Ekspedisi*, but the Head Unit will oversee the performance of each function in both units directly in the field and supervise all processes directly. If the Head of Sub-department *JSA-Ekspedisi* is unable to attend the working day, the Head of the Unit shall be tasked with replacing the Head of Sub-department, such as attending the meeting, coordinating, leading the briefing, and so forth.

d. Analyzer

Analyzer is one of the function in *JSA-Ekspedisi* Unit. The tasks of analyzer explains below:

i. Analyze the job ticket (order file) then create a print planning document. This plan covers the determination of raw materials, printing process, and finishing according to job ticket.

ii. Provide recommendation of machine use as per order specification.

iii. Determine the type of raw material, size, and amount to meet the amount of circulation or demand.

iv. Communicate with the Sub-department of PJC (*Pelayanan Jasa Cetak*) when determining customer order specifications. The goal is to be determined specifications that can be met by the company by adjusting the availability of raw materials, production process capabilities, and various other factors.

v. Do archiving of order planning file every day.

e. Offset Scheduler

Offset Scheduler is one of the function in *JSA-Ekspedisi* Unit. The tasks of analyzer explains below:

i. Perform printing machine scheduling process.
ii. Calculates the production process time based on the planning made by the analyzer.
iii. Scheduling for plate printing in Sub-department of *Pra-cetak* and Digital.
iv. Calculating both overtime and long-shift.
v. Do re-scheduling if needed.

f. Post-print Scheduler

Post-print Scheduler is one of the function in *JSA-Ekspedisi* Unit. The tasks of analyzer explains below:

i. Scheduling Zone A, Zone B, and Zone C, which are post-printing zones with different types of processes.
ii. Calculates the time of the post-print process according to the planning made by the analyzer.
iii. Assisting the analyzer in determining customer order specifications that can be fulfilled by the company especially in terms of finishing the product.
iv. Perform proofing process for certain finishing process and give correction if sample of finishing process examined not in accordance with request.
v. Do re-scheduling if needed.

g. Job Coordinator

Job Scheduler is one of the function in *JSA-Ekspedisi* Unit. The tasks of analyzer explains below:

i. Distribute job ticket to related sub-departments according to production planning.
ii. Controls all production processes.
iii. Ensure scheduling execution runs in accordance with the schedule that has been made.
iv. Provide input to the scheduler if re-scheduling is required.
v. Ensure the transfer of semi-finished goods from one unit to another unit.
vi. Monitor outsourced processes to partners for processes such as print cover, hotprint, emboss, and so on.

h. *Ekspedisi*

Ekspedisi Unit is one of the function in *JSA-Ekspedisi* Unit. The tasks of analyzer explains below:

i. Delivering the finished product to the customer.
ii. Conducting the process of closing internal and external corporate orders (from customers).
iii. Create a delivery letter of the finished product.
iv. Send and receive oursource results from semi-finished goods.
v. Conducting the process of packing the finished product and calculating the number of ready-to-deliver products.
vi. Reporting the advantages or disadvantages of the number of finished products in accordance with the results of the calculation.
vii. Inputs the sending data into the system and archives the file day by day.

i. Digital

Digital Unit in Sub-department of *JSA-Ekspedisi* is different from Digital Print Unit in Sub-department of *Pra-cetak* and Digital. The Digital Unit in the section that will coordinate with the Digital Print Unit in Sub-department of *Pra-cetak* and Digital. His job is as follows:

i. Calculating the time of digital production process based on target to be ordered product.
ii. Prepare digital order scheduling.
iii. Re-scheduling an order that changes schedule by scheduler.
iv. Create a print-out of digital order data.
v. Make an analysis of the finished order in the Digital Print Unit.
vi. Analyzing order deviations.

j. Admin TC (Time Card)

The job of Admin TC are as follows:

i. Collect and process time card data.
ii. Perform archiving activities of time card report.
iii. Attract or collect time card data from the program.
iv. Coordinate with related sections to collect time card data.
v. Stores the archive of time card data in the space provided.

2.4 Company Management

2.4.1. Vision and Mission

Vision of PT. Kanisius

Being a professional company of customer's primary choice through publishing, printing and trading products to realize a nationalist and dignified society.

Mission of PT. Kanisius

1. Engage in Church work and Community education.
2. Prioritize customer satisfaction by providing publications, printed products, ecclesiastical equipment and complete and quality education.
3. Strengthen and increase the number of customers by building *Taman Komunikasi (TAKOM)* and synergize with strategic partners.
4. Achieve growth and profitability through increased sales and cost control.
5. Improve employee productivity with professional human resouce management system.
6. Utilizing the right technology to optimize business operations and create innovative products.

The values implemented in PT. Kanisius are as follows:

1. Honesty
2. Dicipline
3. Wide-awake
4. Competent
5. Learners

2.4.2. Employment

a. Employee Recruitment

Recruitment process in PT. Kanisius is conducted by the Department of *Pengembangan*, *Divisi SDM Sarpras*. Every year, PT. Kanisius always opens job vacancies to meet the needs of the workforce in the company. Job opening is based on the human resource needs requested by each division to the Department of *Pengembangan* and its qualifications are adjusted to the position or position or function required.

Job vacancy at PT. Kanisius is usually announced through social media, official corporate website, announcements to Churches, newspapers, and other agencies, or through employees of PT. Kanisius personally. In general, all applicants who enroll in PT. Kanisius is required to submit a Curriculum Vitae (CV), a copy of a diploma, a copy of the Identity Card (*Kartu Tanda Penduduk or KTP*), a copy of the last value transcript, a portfolio of works ever made, a recent photograph, and a supporting file according to the desired position.

Stages of employee recruitment process in PT. Kanisius covers the administrative stage or file selection, written test, and interview test. This recruitment system uses a selection system, so that in the final stages, candidates will be obtained in accordance with the qualifications required by PT. Kanisius. Applicants who pass the final stage or the interview stage then negotiate related to the salary to be earned during work at PT. Kanisius. If the applicant and the company gets an agreement, then the contract signing is done.

At the beginning of the work initiation period, new employees will be introduced to the company's system and management that includes an explanation of the company's vision and mission, corporate organizational structure, company business processes, ISO certification owned by the company, and also explained about the company's health and safety system. first work, new employees will be accompanied by a department mentor. Then after 3 months, will be evaluated work performance.

b. Compensation System

PT. Kanisius applies the 3P principles to his pay system, namely Pay for Position, Pay for Performance, and Pay for Person. For salaries earned by employees of PT. Kanisius includes basic salary, benefits, and salary from the *Yayasan Dana Pensiun* (YaDaPen). Allowances for permanent employees include job allowances, functional allowances, child support, husband / wife allowances, yadapen family allowances, and other benefits.

The company also provides subsidies for all employees. Subsidies given in the form of rice, educational savings for children, and payroll subsidies. Applied also cuts in wages for employees who come late, home early, and do not come to work.

c. Working Hour

There are 2 types of work hour in PT. Kanisius, the office hours, and working hours of production and logistics. Office hours start at 07.30 WIB up to 15.00 WIB on Monday to Friday, while Saturday starts at 07.30 WIB until 12.30 WIB. For breaks is 11:30 am to 12:00 pm, but the break period is only valid Monday to Friday, no break hours Saturday.

Production and logistics working hours are divided into 2 shifts, at 06.30 WIB until 14.00 WIB on shift 1 with break time at 10.30 WIB until 11.00 WIB, then at 13.30 WIB until 21.00 WIB for shift 2 with break hours at 17.30 WIB to 18.00 WIB . Except on Saturday, shift 1 starts at 06.30 WIB until 11.30 WIB, while shift 2 starts at 11.00 WIB until 16.00 WIB without break.

2.4.3. Facilities

Facilities owned by PT. Kanisius among others as follows:

a. Canteen

All employees of PT. Canisius get a meal once a day. Food is distributed by redeeming employee meal cards given for each department before lunch hour. This canteen has a capacity of up to 80 people. The canteen chef is determined by the tender system, for the winning food enterprise can provide food for Kanisius employees within the certain period of time. Employees also provide feedback on the food quality of the enterprise so it can be decided whether the offered food services by the current enterprise will be used in the next period or not. The canteen is equipped with tables and chairs, a hand wash and a dispenser for drinking. Usually there are at least 2 menus served in this canteen.

Figure 2.10. Canteen in PT. Kanisius

b. Employee's Parking Lot

Employee parking lot is provided for 4-wheeled vehicle and 2-wheeled vehicle. Employee parking lot for 4-wheeled vehicles can accommodate up to 16 vehicles. While the parking lot for 2-wheeled vehicle can accommodate up to 150 vehicles.

Figure 2.11. Parking Lot for 4-wheeled Vehicle

Figure 2.12. Parking Lot for 2-wheeled Vehicle

c. Parking Lot for Visitors of *TAKOM*

Parking Lot for Visitors of *TAKOM* also provides a place for 2-wheeled vehicles and 4-wheeled vehicles. Capacity of this parking lot approximately 10 vehicles for 4-wheeled vehicles and 30 vehicles for 2-wheeled vehicles.

Figure 2.13. Parking Lot for Visitors of *TAKOM*

d. Storage of Paper Waste

Paper waste is collected in the storage of paper waste. There are two types of paper waste, namely white paper waste and colored paper waste. These wastes are collected and then sold to a vendor, namely UD. Sregep. UD. Sregep became a vendor by winning the tender with the purchase of waste paper Rp 4,500, - per kilogram for white paper waste and Rp 2,200, - per kilogram for colored paper waste.

Figure 2.14. Paper Waste (White Paper – Left; Colored Paper – Right)

e. Storage of B3 (*Bahan Berbahaya dan Beracun*) Waste

PT. Kanisius also produces waste containing hazardous and toxic materials produced from the production process in printing. This type of waste is categorized as B3 waste (*Bahan Berbahaya dan Beracun*) according to government regulation, *PP. 18 Tahun 1999*. The storage area is distinguished from other wastes and this waste is also sold to suppliers that provide B3 waste treatment services.

Figure 2.15. Storage for B3 Waste

f. Liquid Waste Treatment

The production process of PT. Kanisius also uses liquid chemicals primarily to support the the production machinery (printing machines). The liquid waste generated from these processes is then discharged to the liquid waste treatment site and collected for sale to the partner.

Figure 2.16. Liquid Waste Treatment Area

In addition to liquid chemicals, waste water that does not contain chemicals is also processed and sterilized for later reuse for the company supply. Processed water is used in the bathroom and is supplied to all water taps in the company, but not for consumption.

Figure 2.17. Liquid Waste Treatment Area

g. Table Tennis Facilities

The company provides facilities to support table tennis equipments that can be used for employee sport activities. This facility is placed in the canteen and can only be used outside the company's break hours.

h. Basketball and Badminton Court

Figure 2.18. Basketball and Badminton Court

The company also provides basketball and badminton court to facilitate employee sport activities.

2.4.4. Marketing System

PT. Kanisius also has several marketing offices in various cities in Indonesia outside Yogyakarta, including Surabaya, Tangerang, Bandung, Jakarta, and Palembang. These offices are responsible for marketing the products of PT. Kanisius in the city and its surroundings. In every marketing office, there are marketing teams that do marketing in every region. The addresses of each marketing office are as follows:

a. Marketing Office in Surabaya

Komplek Ruko Rungkut Megah Blok H/1 Jalan Raya Rungkut 5, Surabaya 60923

b. Marketing Office in Tangerang

Regency Melati Mas Blok A6 No 20 Serpong, Tangerang

c. Marketing Office in Palembang

Jalan Lintas Barat Sukabangun II, Ruko G.3 Keluarahan Sukajaya, Kec. Sukarami Palembang, Sumatera Selatan

d. Marketing Office in Jakarta

Komplek Ruko Kranggan Permai RT 16/4 Jalan Alternatif Cibubur, Jatisampurna, Bekasi 17433

e. Marketing Office in Bandung

Komplek Perumahan Paln Bridge No 5B Jalan Awiligar, Kelurahan Cieunying, Kecamatan Cimenyan, Bandung.

PT. Kanisius also does marketing through the website of the company. The website address of PT. Kanisius is www.kanisiusmedia.co.id.

PT. Kanisius also established *Taman Komunikasi (TAKOM)* in various cities in Indonesia so customers in other cities can visit. The address TAKOM owned by PT. Kanisius are as follows:

a. TAKOM St. Maria
Jalan Daan Mogot 14, Tangerang 15111

b. TAKOM Kanisius Rungkut
Kompleks Ruko Megah Blok H/1, Jalan Raya RUngkut 5 Surabaya 60293

c. TAKOM St. Laurensius
Jalan Sutera Utama 2, Alam Sutera, Serpong Utara, Tangerang Selatan, 15329

d. TAKOM Kanisius Kranggan
Kompleks Ruko Kranggan Permai, RT 16/4 Jalan Alternatif Cibubur, Jatisampurna, Bekasi 17433

e. TAKOM Kanisius Katerdral
Jalan Katerdral 7, Jakarta Pusat

f. TAKOM Santo Antonius Purbayan
Jalan Arifin 1, Surakarta

g. TAKOM St. Yakobus
Puri Widya Kencana Blok LL 1 Citrland, Surabaya

Figure 2.19. *Taman Komunikasi* in Yogyakarta

CHAPTER 3
COMPANY SYSTEM OVERVIEW

Chapter 3 describes the work systems and business processes in the company. The types of products and product specifications produced by the company's production system will also be described in this chapter.

3.1. Business Process

3.1.1. Business Process Mapping

Business Process Mapping in PT. Kanisius done by the student during the period of industrial practice focuses on how an order is processed from the moment the order entered into PT. Kanisius until the finished product is accepted by the customer.

Work process at PT. Kanisius in general is the process of producing books and other prints ordered by customers or orders from internal PT. Kanisius for publishing and office needs. Mapping this business process shows the work flow of each department to process an order that goes to the company either from outside customers or internal PT. Kanisius. The result of Business Process Mapping for Order Fulfillment Process is attached to Appendix 2.

3.1.2. Description of Business Process Mapping

The business process in Appendix 2 describes how an order entered PT. Kanisius was completed by focusing on the PPIC Depatement especially the Sub-department of *JSA-Ekspedisi*. The process of ordering will begin after an agreement between the Department of *Pemasaran* and the customer. The deal that has been made is recorded in a document called job ticket. Each order will also get a *No. WO* or Order Number as the order identity on the production floor. Job ticket is then used as a guideline for the execution of orders in each unit on the production floor. Job ticket contains various information such as order number, date of entry and date of order, number of order or circulation, book number, paper type, paper size, number of contents page, type of volume, finishing type, customer, sales name, type of print rearranged or new), to-print, number of colors, number of packs, amount per wrapping, and other customized additional information. All of this data becomes input to share the kind of calculation on the production floor.

Job tickets obtained from the Department of *Pemasaran* are inserted into a bag or folder called the *kantung order*. These bags will be distributed to different parts and units on the production floor. When the bag is received by a sub-department or unit, then the work process in that sub-department or unit can begin. So this bag will move in sequence from the initial process to the final process of the work of an order.

The part that will receive the *kantung order* from the Sub-department of *Pemasaran* is the Analyzer of the Sub-department of *JSA-Ekspedisi*. After receiving the *kantung order*, Analyzer will do the analysis with focus to the specifications and information that is listed on job ticket. The results of this analysis are printed into the production planning document. This document serves as a guide for making orders for Sub-department of *Pra-cetak*, Sub-department of *Gudang Logistik*, and Offset Printing Unit.

For new prints order, the Sub-department of *Pra-cetak* will be required to make the plate to be used in the printing process. The specification of plate, mold imposition, plate type, plate number, and other information required in the plate printing process are in the *kantung order* and production planning document from the Analyzer. However, this plate-making process is scheduled by the Offset Scheduler. After that, Sub-department of *Pra-cetak* that have printed the plate according to schedule and specifications provided will deliver the ready-made plate to the Sub-department of *Gudang Logistik*.

For reprints order, the Sub-department of *Gudang Logistik* will be required to find the required plate in the Plate Warehouse by looking at the data on the job ticket to see the code of the book to be reprinted making it easier to search the license plate in the Plate Warehouse. After the requested plate is found, the plate along with the *kantung order* will be delivered back to the Analyzer. Then if found damage to the plate, it will be done as the print plate process in a new print.

After this, the production planning document will be checked by the Head of Sub-department of *JSA-Ekspedisi* for verification. After order planning is verified, Offset Scheduler does production scheduling for Offset Printing Unit. Scheduler performs scheduling for all printing machines taking into account processing time, target so, print count, material type, and other factors. The main target is to make schedule based on the closest due date of finished order.

Then for the procurement of raw materials, Analyzer calculates the quantity and size of the raw materials used to process the order and then asks the Sub-department of *Gudang Logistik* to prepare the raw materials with specifications according to Analyzer analysis. Analyzer should analyze the type and size of the raw materials as best as possible to achieve efficient use of materials, so that not a lot of material is wasted.

Then to start the production process, Scheduler will give production schedule to Offset Printing Unit, while Sub-department of *Gudang Logistik* will deliver raw materials and plate and order bag to Offset Printing Unit. Then the production process begins and is controlled by the Job Coordinator. The Job Coordinator is responsible for ensuring that the production schedule that has been created can be executed in a timely manner.

After the print process is complete, then the print will be taken to the finishing area, which are Zone A, B, and C according to the required stages. This process is divided into 3 types based on the type of binding (*jilid*), namely *jilid perfect*, *jilid kawat*, and *jilid benang*. The finishing process for the cover will be explained in the Production Process sub-section. All work on this finishing area is scheduled by Post-Print Scheduler. After receiving the schedule from the Post-Print Scheduler, the finishing area will do the job as per specification in the order bag. At the end of the work on the finishing area is always done inspection to ensure product quality.

The final stage after finishing is packing a book. The packing is done by the Expedition Unit. The Expedition Unit will check the order bag then calculate and verify whether the finished product amount is ready to be delivered in accordance with the request stated on the job ticket. If there is a shortage of finished products, it will be a less printed scheduling process by Offset Scheduler and this causes the re-scheduling process.

If the quantity produced is in accordance with the amount requested by the customer, the Expedition Unit will carry out the packing process as per the request stated on the job ticket. Then once the product is ready to be delivered, the Expedition Unit will send the finished product to the customer by creating a document for the road as a report.

3.2. Product Variety

The main business of PT. Kanisius is publishing and printing. In the field of publishing, PT. Kanisius has 3 product categories, namely Church, Public Education, and Exclusive Publishing Kanisius or Kanisius Exclusive Publishing (KEP). Issuance by PT. Kanisius is called internal publishing. The products of each category are as follows:

a. *Gerejawi*

Books in *Gerejawi* category are spiritual or related to the needs of the Church. Books for the benefit of the Church include the book of *Tata Perayaan Ekaristi, Madah Bakti,* the Bible, and the sacramental handbooks such as Handbook of *Komuni Pertama*, *Krisma*, and so on.

Figure 3.1. Example of *Buku Gerejawi*

Spiritual reading books included in this category include philosophy reading books, theology, catechesis, spirituality, prayer and worship books, inspirational, and spiritual reading.

Figure 3.2. Example of *Buku Bacaan Rohani*

b. *Kependidikan Umum*

Book in *Kependidikan Umum* catogory is divided into 2 groups, namely the *Buku Pelajaran* (BuPel) and *Non-Buku Pelajaran* (Non-BuPel). BuPel includes instructional learning books from elementary to high school level such as textbook of Catholic Religion studies, Thematic books, and textbooks according to the applicable curriculum. For universities, published general courses and textbooks for various fields of study such as economics, education, psychology, law, language, and health.

Figure 3.3. Example of *BuPel* Product
(Source: books.google.com)

Non-BuPel includes children's and adult reading books, such as idea books, inspirational books, general knowledge, and so on. It also publishes books for families and the general public, such as child care books, personal development, health, and skills.

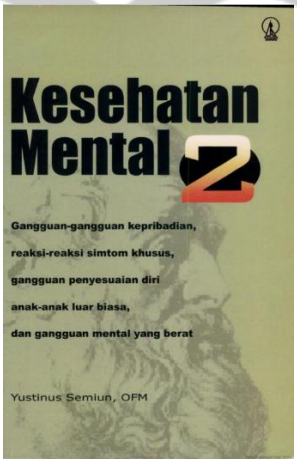


Figure 3.4. Example of *Non-BuPel* Product
(Source: books.google.com)

c. Kanisius Exclusive Publishing (KEP)

Exclusive issue of product ever published in PT. Kanisius, among others, is a lecture book composed by lecturers from a university, textbooks that are used only inside a school internally, autobiographical books (offerings / special gifts), papers, work reflections, and so on.

PT. Kanisius also serves external publishing. What is meant by external publishing is, issuance made by a customer outside of PT. Kanisius who only use the services of PT. Canisus to print books only, but books to be printed are compiled by the external publisher with printouts using the publisher's logo without displaying Kanisius publisher's logo.

In addition to books, there are also other print products served by PT. Kanisius is divided into 2 groups, namely offset and digital. For product groups or offset prints are usually orders of large quantities or so-called mass prints. As for digital printing, customers can make a minimum order of 1 sheet print. Non-book products served by PT. Kanisius as follows:

a. Magazines and Newspaper

Figure 3.5. Magazines
(Source: kanisiusmedia.co.id)


8 PELANGI SPORTS

MEDIA SATYA | LASPELA
RABU | 1-7 JUNI 2016

Basket Putra Babel Juara Kedua

Oleh:
Melia Putri Handayani
Wartawan LAS PELA Yogyakarta

YOGYAKARTA, LASPELA - Provinsi Kepulauan Bangka Belitung baru saja menorehkan prestasi olahraga basket pada laga Final Kejuaraan Nasional Bola Basket Kelompok Umur 16 yang diselenggarakan di GOR Klebengan Yogyakarta pada tanggal 28 Mei 2016. Walaupun harus kalah dari Provinsi DKI Jakarta dengan skor 86-62, namun prestasi Tim Putra Babel ini sungguh membanggakan karena Tim Babel merupakan kuda hitam dalam kejuaraan ini.

Tidak ada yang menyangka Tim Putra Babel dapat menaklukkan tuan rumah Tim Putra DI Yogyakarta dalam laga Semifinal dengan skor 92-72, pada Jumat, 27 Mei 2016 dan bisa masuk ke babak Final. Selain mendapatkan penghargaan sebagai "2nd Place Winner" dalam Kejurnas KU16 Yogyakarta 2016 ini, Tim Putra Babel juga mendapatkan penghargaan sebagai "The Most Favorite Team", yaitu tim paling populer dan terfavorit di antara semua tim yang menjadi peserta.

Selain itu, penghargaan lain juga didapatkan oleh dua pemain dari Tim Putra Babel, yaitu "Top Steal" atas nama Lifrendo (Pemain No.9) dan "Top Rebound" atas nama Fransiscus Prasetio (Pemain No.24).

Penghargaan "Top Steal" adalah penghargaan kepada pemain yang melakukan "steal" dengan jumlah terbanyak untuk keseluruhan pertandingan, sedangkan Penghargaan "Top Rebound adalah penghargaan kepada pemain yang melakukan "rebound" dengan jumlah terbanyak untuk keseluruhan pertandingan.

Walaupun harus tunduk dengan kehebatan Juara 1 Tim Putri yaitu tim Putri DIY dengan skor 77 – 50 pada pertandingan hari Jumat, 27 Mei 2016, namun salah satu pemainnya mampu mendapatkan Penghargaan "100 Point Club", yaitu pemain bernomor punggung 8, Melia Viska.

Penghargaan "100 Point Club" adalah penghargaan untuk pemain yang mencetak skor >= 100 poin untuk keseluruhan pertandingan.

PUTRI	
4	HIDAYAT Vanessa
5	AGNES Graciela
7	VALENCIA Alsa
8	MELIA Viska (Captain)
10	MAUREN Sera
11	WIJAYA Evelline
12	PUTRI Merlinta
13	SILVIANA Seyren
14	MARIANA Mariana
15	ALSERA Friska

No.Punggung	Nama
4	CHANDRA Jorkeef
5	ONALDYY Wijaya
6	VALENTINO Aldi
8	ANDERSEN Steven
9	LIFRENDO Lifrendo
15	MARCELLINO Denis
16	JORLANDY Febri
18	INDRAGARA Muhammad
21	MICHELLERYO Michellerya (Captain)
22	ERGA Antoni
24	PRASETIO Fransiscus

Figure 3.6. Newspaper

b. Calendars

Figure 3.7. Calendars

c. File Holder

Figure 3.8. File Holder

d. Goodie Bag

Figure 3.9. Goodie Bag

e. Packaging Box

Figure 3.10. Packaging Box

f. Blocknote

Figure 3.11. Blocknote

g. Agenda Book

Figure 3.12. Agenda Book

h. Cards

Figure 3.13. Cards

i. Flyer and Booklet

Figure 3.14. Flyer and Booklet

j. Envelopes

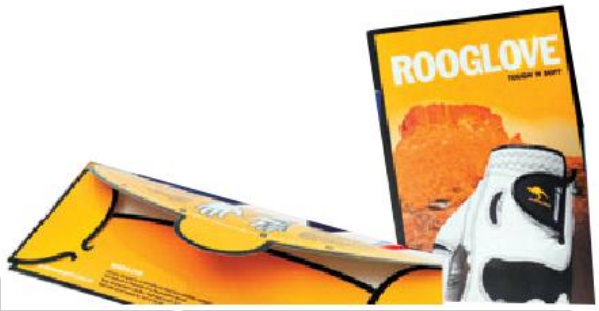


Figure 3.15. Envelope

3.3. Production Process

Production process at PT. Kanisius is divided into 2 types, which are offset printing and digital printing. Offset printing is usually done for orders with print or circulation quantities, or so called mass printing. For digital printing, PT. Kanisius serves mold at least 1 sheet.

3.3.1. Process of Offset Printing

The offset printing process can be defined as a printing process in which the inked print arrangement is offset or transferred from the plate onto rubber sheets in the machine to be attached to the paper so as to stamp the process.

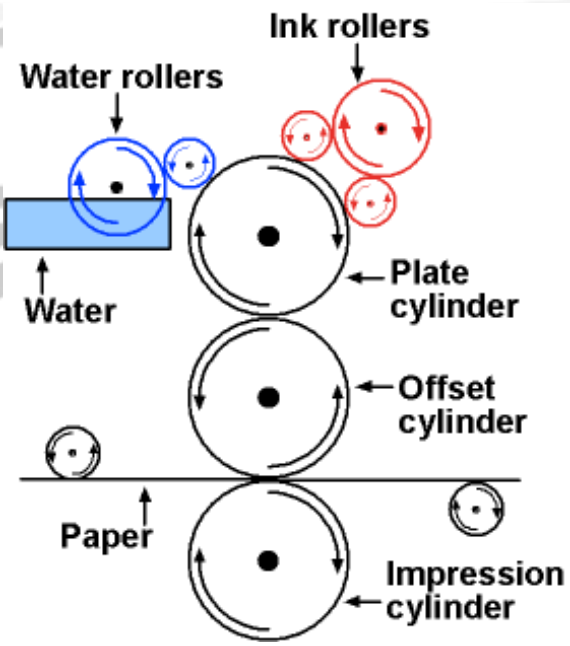


Figure 3.16. Offset Printing Illustration

(Source: wikipedia.co.id)

Stages of offset printing process consists of 3 main processes, namely pre-print, print and post print. The explanation is as follows:

a. Pre-printing Process

From the entire process of offset printing, pre-print stage is done by CTP Unit (Computer to Plate), Sub-department of *Pra-cetak*. At this stage, the order file you want to print by the customer is first printed on the plate. Before the order file to be printed on the plate is received by the CTP Unit, the Analyzer of Sub-department PPIC *JSA-Ekspedisi* first determines its print imposition settings. What is meant by imposition is setting the print area of the order file onto the plate by utilizing as much of the plate area as the print area. The specified imposition setting will be informed to the CTP Unit in the section ordering document. This document is inserted into the order bag.

To be able to start the plate printing process, the CTP Unit must accept the ordering bag and also the plate printing schedule from the Scheduler Offset. Then the print process is done according to the information in the order bag and print schedule. The machine used to print the plate is the Heidelberg Suprasetter. This machine is controlled by a computer that will display the processes that take place inside the machine so that if there is an error in the process, then the computer will give instructions on the action to be done to overcome the problem.

There are 2 types of plates used in the printing process. Large plate size 745x605 mm. Large plates are usually used for printed book contents. Small plate size 525x459 mm. Small plates are usually used for printing book covers and other types of non-book prints. Each machine in the Offset Print Unit can only use 1 plate type (large or small). For 1 color print, it will be printed only 1 plate, for 2 color prints (black and 1 color) will be printed 2 plate consisting of black plate and color plate, while for full color print will be printed 4 plate consisting of plate cyan, magenta, yellow, and black.

Then after the requested plate is finished, then the plate must be delivered to the Sub-department of *Gudang Logistik* along with its order bag. Plates that have been stored in Sub-department of *Gudang Logistik* is ready for the printing process. In addition to the plate, Sub-department of *Gudang Logistik* will also prepare the raw materials intact required in the print process in accordance with job ticket and order planning made by Analyzer that has been attached in the order bag.

b. Printing Process

The print process is done by the Offset Print Unit with scheduling made by Scheduler Offset. There are 5 machines with different capabilities in the Offset Printing Unit. Explanation of each machine will be explained in sub-chapter of production facility. Each machine is operated by an operator and offset printing scheduling will be made for each machine. In the Offset Print Unit there is a unit head responsible for ensuring the execution of the print schedule and controlling all printing processes on the unit.

Before starting the process of printing, will be the process of setting the machine (machine setup) in accordance with the needs of printing. One example of the machine settings to be done is the setting of the machine's print speed, or the type of print setting, whether one side or back and forth, or the whole paper size setting to be printed, and various other settings.

Once ready, the raw materials in the form of whole paper and also the printing plate will be taken from the Logistics Warehouse which is located opposite the Offset Printing Unit. Then began the printing process. In the printing process, each machine will produce sheets called katerns. A katern sheet can contain as many as 2 to 16 pages. Each side can contain 2 to 8 pages. The settings are as follows:

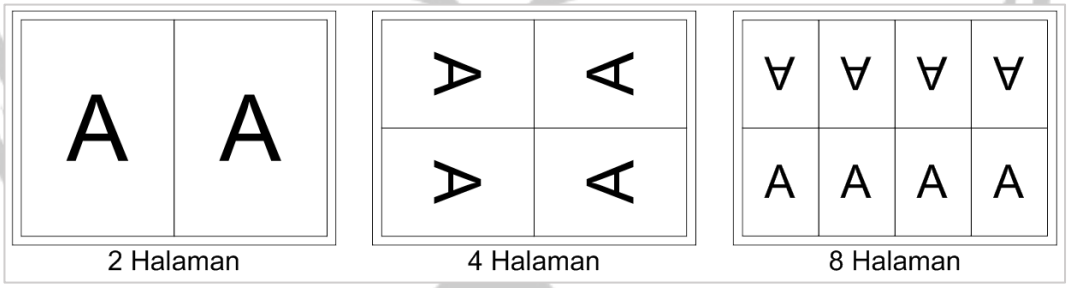


Figure 3.17. Imposition of Katern for 1 Sided-printing

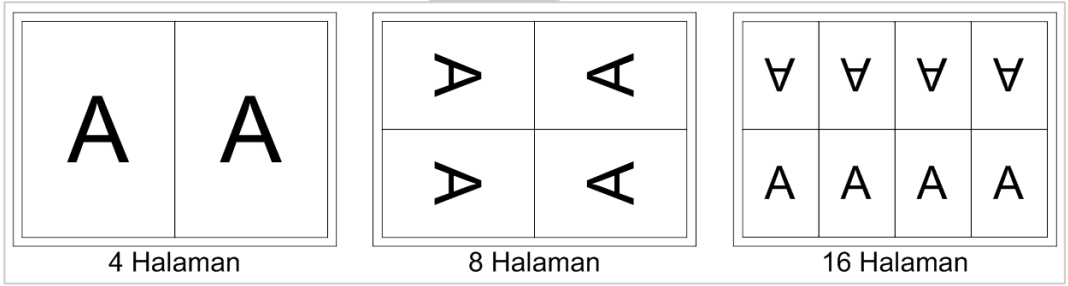


Figure 3.18. Imposition of Katern for 2 Sided-printing

c. Post-printing Process

After the print process is complete, the printout will be sent to the post-print area. The post-printing process is done based on the order planning document. Basically, there are 3 types of processes that are categorized by type of volumes, namely the process of wire, binding, and perfect binding. The explanation of each process is as follows:

i. *Jilid Benang*

Figure 3.19. Product of *Jilid Benang*

The binding process begins with a folding of 16-page *katern* sheet (8 pages on 1 side and 8 other pages on the other side). This sheet is folded in such a way that the 16 pages are sequential resulting in a pile of cathans the total number of pages of the book.

Collect the folded katern is then sorted and inserted into the yarn sequence machine. In this machine, each katern is bound with a thread in the middle (between the 8th and 9th pages). All the folded kernels are then stacked sequentially from the beginning of the book to the end. Then the stack of books is united with the cover and glued so that the whole book. However, the composition of this book still has sides whose papers are still attached to each other, since the folds have not been cut. Therefore, once the book is intact, the sides are cut to form the finished book.

also begins with page cutting and sorting. Then if the order is set, then the pages will be bound with threads. The page is bound, because if it is too much, the thread can not hold the number of pages. Therefore, the yarn volume consists of several groups of pages bound together with other threads.

ii. *Jilid Perfect*

For the perfect binding, the katern sheets are folded and sequenced later in the perfect binding machine, these folded valves will be slashed on the part to be bound so that the folds on the part are lost. Then the katmen that have become sheet of pages glued with hot glue so that stick together on the side of the volume. Then after all the contents of the book dilem into one, the cover is also glued to the contents of books that have been bound. The result is a book with a cover that on the top, right, and bottom still stick together and still leaves the paper area to be discarded. To perfect this process, the area is cropped and generates the full book.

Figure 3.20. Product of *Jilid Perfect*

iii. *Jilid Kawat*

Figure 3.21. Product of *Jilid Kawat*

In the wire-binding process, each sheet of katern is first cut every 4 pages (2 pages on the front and other pages on the other side). Then if it is cut per 4 pages, it will be the process of sorting the page. The process of sorting this page is done with the machine, and at the end of the machine, the sequential pages will be bound in the middle of the book using the wire. Wire volumes can not be used for books with too many pages.

3.3.2. Process of Digital Printing

The digital printing process is not as long as the offset printing process, because digital printing technology enables the printing process with PDF file format (Portable Document Format). The process is like using a regular printer.

The pre-print process for digital printing only checks files, whereby Kanisius checks the files from customers whether the paper size setting and print imposition are ready for printing on a digital machine. After the file is declared to be printed, then it can then be directly printed on a digital machine.

The digital print schedule remains through the Sub-department of *JSA-Ekspedisi*, then the print process is controlled and reported back to the Sub-department of *JSA-Ekspedisi*. For digital printing finishing process, done with the same process as in offset printing process. Some finishing machines are also provided in the digital area, so there is no need to bring prints to offset area for finishing process.

If the digital print is completed with the machine on the offset production unit, then the scheduling for this finishing will be scheduled by the Post-Print Scheduler. But if finishing is done with the existing machine in the digital printing area, then no need to do scheduling. Usually finishing with machines in the digital printing area is done for fewer order quantities.

3.4. Production Facility

PT. Kanisius uses several machines that support the printing process in the company, among others are as follows:

a. Pre-printing Machine

Plate making uses Heidelberg Suprasetter Machine. There is one plate making machine in CTP Unit, Sub-department of *Pra-cetak* and Digital. This machine needs one operator.

Figure 3.22. Heidelberg Suprasetter Machine

b. Printing Machine

There are 4 types of offset printing machines used in PT. Kanisius. These machines are placed in the same area. Each machine is operated by an operator and all operators are supervised by a Head Offset Printing Unit, Mr. Totok. The machine used has different capabilities, the explanation is as follows:

i. Miller

Miller machines are used for black and white prints. This machine can print on two sides of the paper at once. The ability to print on both sides of the paper is very useful for the whole process, as it can reduce production time.

Miller machines can print up to 5,500 sheets per hour with an average set up time of 15 minutes. The paper size that can be used as print media on this machine is 220x280 mm and 520x720mm size. The size of the plate is 745x605 mm (large plate).

Figure 3.23. Miller Machine

ii. Speed Master 52

Speed Master 52 machine is a color printing machine. The colors used on this machine are CMYK color types (Cyan, Magenta, Yellow, Black). Each color is printed separately and in sequence. This machine can print 10,000 sheets per hour with machine set up time of 15 minutes on average. The full paper size that can be printed on this machine is 105x180 mm and 370x520 mm.

This machine can only print one side for each printing process, so the production time for the print back and forth will be doubled. The process of flipping the paper to print the opposite side is done manually by the operator.

Figure 3.24. Speed Master 52 Machine

iii. Rolland (2 Colors)

Rolland 2 Color Machine is used for molds with 2 colors, namely black and other colors (usually red or green). This machine can print as many as 5,500 sheets every hour. The machine set up time is on average 10 minutes. This machine is able to print two sides of the paper at once. When will print the opposite side, then there will be set up time again for 10 minutes. The paper size for this machine is 240x320 mm and 520x720 mm. The plate used is a large plate measuring 745x405 mm.

Figure 3.25. Rolland (2 Colors) Machine

iv. Rolland (4 Colors)

There are 2 Rolland 4 Color machines in the Offset Printing Unit. The ability of both machines is the same, which can print up to 7,500 sheets of paper per hour. However, the set up time of both machines is slightly different, ie 20 minutes for Rolland 4 New Color and 25 minutes for Rolland 4 Old Colors. The size that can be printed with this machine is at least 240x420 mm in size and a maximum of 520x720 mm. This machine can only print one side only, so it takes additional time to flip the paper if it is used to print 2-sided prints. This machine also uses CMYK color type, so there are 4 parts of the machine with color cyan, magenta, yellow, and black.

Figure 3.26. Old Rolland (4 Colors) Machine

Figure 3.27. New Rolland (4 Colors) Machine

c. Post-printing Machine

The machines for the post-printing process are the machines for the finishing process. These machines are placed in 3 different zones, namely Zone A, Zone B, and Zone C, with the following divisions:

i. Zone A

In Zone A, there is a machine for *jilid kawat*. To be bundled with wire, the sheets of katern are first cut by cutting machines in the same zone to be 4 pages for each piece to be bound. Then the sheet per 4 pages will be placed on the machine. The machine will sort and staple the sheets into a book. The name of this machine is Muller Martini. The machine is operated by an operator.

Figure 3.28. Muller Martini Machine (For *Jilid Kawat*)

There is also a folding machine for folding the katern sheet. There are 3 folding machines in this zone, the MBO Folding Machine, the Stahl Fold Machine 1, and the Stahl Fold Machine 2. The MBO Folding Machine is used to fold the cathode with the number of pages per page of 4 to 16 pages of the book. While the Stahl Fold Machine is used to fold a single folded katern sheet, such as a newspaper. The process of sorting the pages of paper folds of these machines is done manually by the operator.

Figure 3.29. MBO Folding Machine

Figure 3.30. Stahl Folding Machine

In addition to machines that process book content, there are also machines that process book covers, envelopes, and packaging. To cover paper cover or envelope and packaging with plastic, used lamination machine or called Water Base Thermal, so the surface becomes shiny. To make parts appear on the surface of paper, used emboss machine.

Figure 3.31. *Water Base Thermal (Lamination Machine*)

ii. Zone B

In Zone B there is a machine used to bind the folds of a katern made in Zone A. The binding machine in Zone B is a Muller Martini for *jilid benang* and a perfect binding machine or so-called Star Binder Machine for *jilid perfect*. Muller Martini will bunch each katern in the center with the yarn. Then all this katern will be united with the thread as well.

Figure 3.32. Muller Martini Machine (For Jilid Benang)

The Star Binder machine uses a heated glue to unite the pages of the book. The machine will sort the kernels and slice the cathode on the side to be bound so that the heated glue can fit between each page. Glue that entered between the pages were attached each page to each other.

Figure 3.33. Muller Martini Machine (For Jilid Benang)

Then, both *jilid benang* and *jilid perfect*, have the same final stages. The final stage of the two binding process is to unite the contents of the book with its cover. This process is done with Perfect Binding Star Binder Machine. The contents of the book and cover are combined with glue. After the contents of the book together with the cover, then the sides of books that are not needed (the rest of the print area) will be cut with a cutting machine.

iii. Zone C

There are several functions in Zone C used to complete the process from Zone A and Zone B. After the contents of the book and its cover are cut and trimmed to become a book, the next step is quality control. This quality control process is done manually by some operators. All books are inspected for quality views. If a defect is found, the book will be placed on a shelf. These defective books will be reused if there is a shortage of finished products. If there is a shortage of finished products, the defective book will be fixed. However, if it is still lacking, then the process will be less print (print again a number of book shortages).

After the inspection books are considered good, then the books will go into the process of wrapping, the packaging of books with clear plastic is pressed. This process is done by a machine operated by an operator. The result of the wrapping process is then delivered to the Expedition Unit to be counted and packaged in cardboard ready to send.

Figure 3.34. Wrapping Machine

Figure 3.35. Wrapping Process

d. Digital Printing Machine

In the Digital Print Unit there are 2 types of machines, namely black and white printing machines and black and white printing and color. The only black-and-white printing press is the Océ VP6250, while the black-and-white and color printing machines are Konica Minolta C 8000. In addition, there are other machines such as ID Card lamination machine, fusionator and plong (ID) machine ID Card.

Figure 3.36. OCE VP6250 Machine

Figure 3.37. Konica Minolta C 8000 Machine

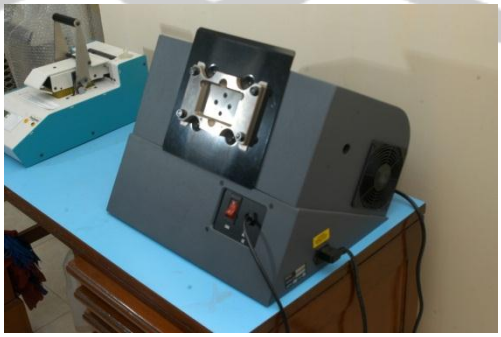


Figure 3.38. Cutting Machine for ID Card

CHAPTER 4
INDUSTRIAL PRACTICE PROJECT REVIEW

This chapter describes the work done by students during the period of industrial practice. It will also explain the results of the tasks assigned by the On-site Supervisor and Faculty Supervisor.

4.1. Scope of Work

In the period of industrial practice at PT. Kanisius, students are placed in the Sub-department of *JSA-Ekspedisi*, PPIC Department (Production and Planning and Inventory Control), *Divisi Percetakan*. The Sub-department of *JSA-Ekspedisi* performs scheduling and control over the entire process of both offset and digital printing performed by the company. All production processes are controlled by this sub-department so that all incoming orders can be completed on time in accordance with the agreement with the customer.

Students are also assigned to the CTP Unit (Computer to Plate), Sub-department of *Pra-cetak* and Digital. This unit prints the plates that will be used in the mass printing process. Students also assist in archiving the plate in the warehouse plate by entering the data plate manual that has been made by the Department of Logistics into the computer to facilitate the process of data collection and data retrieval in the future.

During the period of industrial practice, students cooperated with some colleagues in the Sub-department of *JSA-Ekspedisi*, CTP Unit, and several colleagues in the Logistics Department, among others, as follows:

d. Head of Sub-department of *JSA-Ekspedisi,* Mr. Pria Sasongko
e. Head of Unit *JSA-Ekspedisi,* Mr. Bambang Suprianto
f. Job Coordinator of the sub-department, Mr. Eko
g. Analyzer, Mr. Febru
h. Offset Scheduler, Mr. Vino
i. Pre-printing Scheduler, Mr. Avid
j. Expedition Team, Mr. Yuli and Mr. Wawan
k. CTP Unit, Mr. Y. Eko and Mr. Kidi
l. Logistics Department, Mr. Iwan and Mr. Antok

4.2. Responsibility and Authority in Industrial Practice

Mr. Sasongko as the On-site Supervisor welcomes the students to process and engage in work activities in the Sub-department of *JSA-Ekspedisi*. Students are given the responsibility to assist the daily tasks in the Sub-department of *JSA-Ekspedisi* and other departments as the company's requirements. Tasks undertaken by students during industrial practice are as follows:

g. Distributing *kantung order* to various units of PPIC to assist Job Coordinator (Mr. Eko) tasks.
h. Perform process analysis of *Olahan Capaian* data by finding the exact number of order schedule and inappropriate schedule to assist the task of Head of Sub-department of *JSA-Ekspedisi* (Mr. Sasongko).
i. Make the program to support the calculation for production time in the scheduling process to assist the task of Scheduler.
j. Make the program to support the calculation of the duration of order completion to assist the scheduling process performed by Scheduler Offset.

In addition to the duties in the Sub-department of *JSA-Ekspedisi*, students are also assigned in other sub-departments especially if work in other sub-departments requires additional personnel to support their work processes. The tasks given elsewhere are as follows:

a. Printing plates to assist the CTP units tasks (Mr. Yeko and Mr. Kidi)
b. Inputing the archive data of plate from the plate warehouse to assist the task of Plate Warehouse (Mr. Antok)
c. Doing data management of *Data Faktur* and providing feedback on how to manage the data in the most efficient and effective ways to assist the tasks of Manager of *Divisi Percetakan* and the Secretary (Mrs. Budiastuti)
d. Doing the data management of *Data Tunggu* used in the identification of time wasted due to several waiting time to assist the task of Manager Manager of *Divisi Percetakan* (Mrs. Budiastuti)

The tasks assigned to the students during the period of industrial practice are not done routinely every day. All depends on the needs of the company. Students assist as much as possible in sub-department or unit that require additional personnel, so that during the period of industrial practice, students not only learn the business process in one units only, but can know as much as possible the existing process in the company.

4.3. Work Methodology

From the explanation in the previous sub-chapter, students get several types of tasks from different sub-departments with different responsibilities. The methodology performed in completing each task is as follows:

4.3.1. Distribution of *Kantung Order*

In accordance with the business process to complete an order at PT. Kanisius, the tasks in each sub-department is done by referring to the documents in the *kantung order*, which includes job tickets, production planning documents, and other supporting documents. The task of distributing *kantung order* is usually done by the Job Coordinator, then students are asked to assist this task to speed up the distribution of *kantung order*. The faster the *kantung order* is received by the production units, the completion of each task is also more quickly completed.

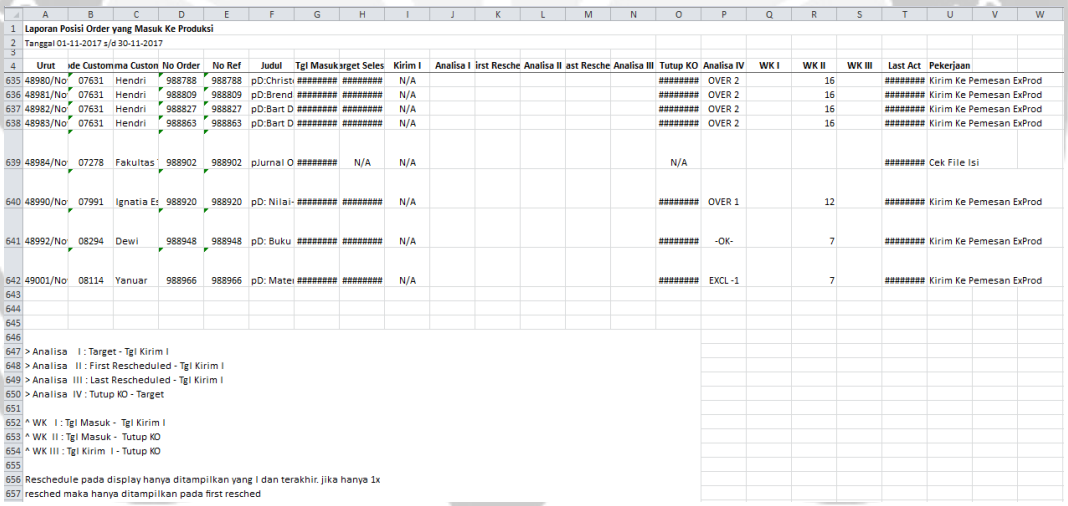
The *kantung order* distributed by the students comes from the Sub-department of *JSA-Ekspedisi*. This *kantung order* begins to be distributed after the Analyzer makes order planning. *Kantung order* is then sent to other sub-department or unit according to the order of the the works to finish the order. For new orders, the *kantung order* must be delivered to the Sub-*departmen* of *Pra-cetak* and Digital. As for reprint, *kantung order* will be sent to Logistics Department to find plate in plate warehouse. After the plate is found, then the plate will be checked again by Analyzer. Then after checking, the plate will be brought to the Logistics Department and then ready for use by the Offset Printing Unit. Students also help distribute the plate and *kantung order* in this process.

Figure 4.1. *Kantung Order*

4.3.2. Data Management of *Olahan Capaian*

Head of Sub-department of *JSA-Ekspedisi*, Mr. Sasongko provide collection of data completion of orders done by PT. Kanisius for several period of time and students are required to find the exact number of orders that is finished on time and not on time. The job of this data is one of the jobs of the Head of Sub-department of *JSA-Ekspedisi* to then be reported to the Manager of *Divisi Percetakan* for evaluation. Students are asked to help and are also asked to find a faster way to get this job done.

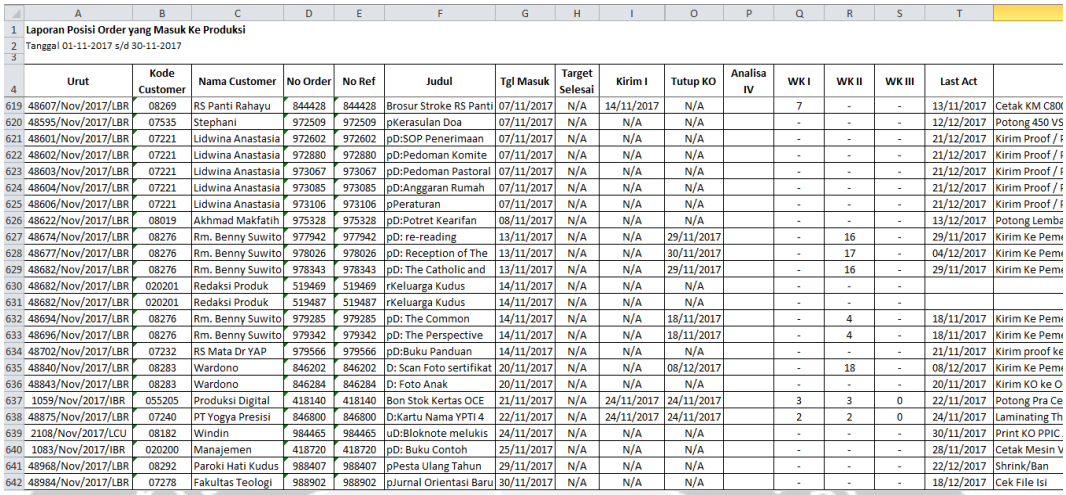
Students then observed raw data provided by Mr. Sasongko and found a way to analyze data more quickly by utilizing Microsoft Excel software. The raw data provided is the result of data withdrawal from the software used in the company. The data resulted from the company's information system is then converted to a Microsoft Excel file. The raw data provided is still very messy. Students then tidy up the data to make it easier to read and understand.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	Laporan Posisi Order yang Masuk Ke Produksi																						
2	Tanggal 01-11-2017 s/d 30-11-2017																						
3																							
4	Urut	ode Customma Custon		No Order	No Ref	Judul	Tgl Masuk	rget Seles	Kirim I	Analisa I	irst Resche	Analisa II	ast Resche	Analisa III	Tutup KO	Analisa IV	WK I	WK II	WK III	Last Act	Pekerjaan		
635	48980/No	07631	Hendri	988788	988788	pD:Christi	########	########	N/A						########	OVER 2		16		########	Kirim Ke Pemesan ExProd		
636	48981/No	07631	Hendri	988809	988809	pD:Brend	########	########	N/A						########	OVER 2		16		########	Kirim Ke Pemesan ExProd		
637	48982/No	07631	Hendri	988827	988827	pD:Bart D	########	########	N/A						########	OVER 2		16		########	Kirim Ke Pemesan ExProd		
638	48983/No	07631	Hendri	988863	988863	pD:Bart D	########	########	N/A						########	OVER 2		16		########	Kirim Ke Pemesan ExProd		
639	48984/No	07278	Fakultas	988902	988902	pJurnal O	########	N/A	N/A						N/A					########	Cek File Isi		
640	48990/No	07991	Ignatia Es	988920	988920	pD: Nilai-	########	########	N/A						########	OVER 1		12		########	Kirim Ke Pemesan ExProd		
641	48992/No	08294	Dewi	988948	988948	pD: Buku	########	########	N/A						########	-OK-		7		########	Kirim Ke Pemesan ExProd		
642	49001/No	08114	Yanuar	988966	988966	pD: Matei	########	########	N/A						########	EXCL -1		7		########	Kirim Ke Pemesan ExProd		
643																							
644																							
645																							
646																							
647	> Analisa I : Target - Tgl Kirim I																						
648	> Analisa II : First Rescheduled - Tgl Kirim I																						
649	> Analisa III : Last Rescheduled - Tgl Kirim I																						
650	> Analisa IV : Tutup KO - Target																						
651																							
652	^ WK I : Tgl Masuk - Tgl Kirim I																						
653	^ WK II : Tgl Masuk - Tutup KO																						
654	^ WK III : Tgl Kirim I - Tutup KO																						
655																							
656	Reschedule pada display hanya ditampilkan yang I dan terakhir, jika hanya 1x																						
657	resched maka hanya ditampilkan pada first resched																						

Figure 4.2. Screenshot of Original Data for *Olahan Capaian*

Each row in the data contains information of an order completed by PT. Kanisius. The information to be considered in this data processing is the order entry date, target completion, and the closing date of the *kantung order* (*Tutup KO*). Students are required to record which orders are completed earlier than the completed target, completed on time, and completed late. The completed date of the order is shown in the *Tutup KO* column. When an order is completed in PT. Kanisius, then closing the *kantung order* (KO).



	A	B	C	D	E	F	G	H	I	O	P	Q	R	S	T	
1	**Laporan Posisi Order yang Masuk Ke Produksi**															
2	Tanggal 01-11-2017 s/d 30-11-2017															
3																
4	**Urut**	**Kode Customer**	**Nama Customer**	**No Order**	**No Ref**	**Judul**	**Tgl Masuk**	**Target Selesai**	**Kirim I**	**Tutup KO**	**Analisa IV**	**WK I**	**WK II**	**WK III**	**Last Act**	
619	48607/Nov/2017/LBR	08269	RS Panti Rahayu	844428	844428	Brosur Stroke RS Panti	07/11/2017	N/A	14/11/2017	N/A		7	-	-	13/11/2017	Cetak KM C80
620	48595/Nov/2017/LBR	07535	Stephani	972509	972509	pKerasulan Doa	07/11/2017	N/A	N/A	N/A		-	-	-	12/12/2017	Potong 450 VS
621	48601/Nov/2017/LBR	07221	Lidwina Anastasia	972602	972602	pD:SOP Penerimaan	07/11/2017	N/A	N/A	N/A		-	-	-	21/12/2017	Kirim Proof / F
622	48602/Nov/2017/LBR	07221	Lidwina Anastasia	972880	972880	pD:Pedoman Komite	07/11/2017	N/A	N/A	N/A		-	-	-	21/12/2017	Kirim Proof / F
623	48603/Nov/2017/LBR	07221	Lidwina Anastasia	973067	973067	pD:Pedoman Pastoral	07/11/2017	N/A	N/A	N/A		-	-	-	21/12/2017	Kirim Proof / F
624	48604/Nov/2017/LBR	07221	Lidwina Anastasia	973085	973085	pD:Anggaran Rumah	07/11/2017	N/A	N/A	N/A		-	-	-	21/12/2017	Kirim Proof / F
625	48606/Nov/2017/LBR	07221	Lidwina Anastasia	973106	973106	pPeraturan	07/11/2017	N/A	N/A	N/A		-	-	-	21/12/2017	Kirim Proof / F
626	48622/Nov/2017/LBR	08019	Akhmad Makfatih	975328	975328	pD:Potret Kearifan	08/11/2017	N/A	N/A	N/A		-	-	-	13/12/2017	Potong Lemba
627	48674/Nov/2017/LBR	08276	Rm. Benny Suwito	977942	977942	pD: re-reading	13/11/2017	N/A	N/A	29/11/2017		-	16	-	29/11/2017	Kirim Ke Pem
628	48677/Nov/2017/LBR	08276	Rm. Benny Suwito	978026	978026	pD: Reception of The	13/11/2017	N/A	N/A	30/11/2017		-	17	-	04/12/2017	Kirim Ke Pem
629	48682/Nov/2017/LBR	08276	Rm. Benny Suwito	978343	978343	pD: The Catholic and	13/11/2017	N/A	N/A	29/11/2017		-	16	-	29/11/2017	Kirim Ke Pem
630	48682/Nov/2017/LBR	020201	Redaksi Produk	519469	519469	rKeluarga Kudus	14/11/2017	N/A	N/A	N/A		-	-	-		
631	48682/Nov/2017/LBR	020201	Redaksi Produk	519487	519487	rKeluarga Kudus	14/11/2017	N/A	N/A	N/A		-	-	-		
632	48694/Nov/2017/LBR	08276	Rm. Benny Suwito	979285	979285	pD: The Common	14/11/2017	N/A	N/A	18/11/2017		-	4	-	18/11/2017	Kirim Ke Pem
633	48696/Nov/2017/LBR	08276	Rm. Benny Suwito	979342	979342	pD: The Perspective	14/11/2017	N/A	N/A	18/11/2017		-	4	-	18/11/2017	Kirim Ke Pem
634	48702/Nov/2017/LBR	07232	RS Mata Dr YAP	979566	979566	pD:Buku Panduan	14/11/2017	N/A	N/A	N/A		-	-	-	21/11/2017	Kirim proof ke
635	48840/Nov/2017/LBR	08283	Wardono	846202	846202	D: Scan Foto sertifikat	20/11/2017	N/A	N/A	08/12/2017		-	18	-	08/12/2017	Kirim Ke Pem
636	48843/Nov/2017/LBR	08283	Wardono	846284	846284	D: Foto Anak	20/11/2017	N/A	N/A	N/A		-	-	-	20/11/2017	Kirim KO ke O
637	1059/Nov/2017/IBR	055205	Produksi Digital	418140	418140	Bon Stok Kertas OCE	21/11/2017	N/A	24/11/2017	24/11/2017		3	3	0	22/11/2017	Potong Pra Ce
638	48875/Nov/2017/LBR	07240	PT Yogya Presisi	846800	846800	D:Kartu Nama YPTI 4	22/11/2017	N/A	24/11/2017	24/11/2017		2	2	0	24/11/2017	Laminating Th
639	2108/Nov/2017/LCU	08182	Windin	984465	984465	uD:Bloknote melukis	24/11/2017	N/A	N/A	N/A		-	-	-	30/11/2017	Print KO PPIC
640	1083/Nov/2017/IBR	020200	Manajemen	418720	418720	pD: Buku Contoh	25/11/2017	N/A	N/A	N/A		-	-	-	28/11/2017	Cetak Mesin V
641	48968/Nov/2017/LBR	08292	Paroki Hati Kudus	988407	988407	pPesta Ulang Tahun	29/11/2017	N/A	N/A	N/A		-	-	-	22/12/2017	Shrink/Ban
642	48984/Nov/2017/LBR	07278	Fakultas Teologi	988902	988902	pJurnal Orientasi Baru	30/11/2017	N/A	N/A	N/A		-	-	-	18/12/2017	Cek File Isi

Figure 4.3. Screenshot of Organized Data for *Olahan Capaian*

From the data obtained, students are asked to group the order based on the date of entry and target completion of the order. Examples of grouping are as follows:

a. Order Oktober minta jadi November
b. Order November minta jadi November
c. Order Oktober minta jadi Desember
d. Order November minta jadi Desember

To group the data by grouping like the example above, then raw data must be sorted by date of entry and then sorted the target date. The results are grouped into new sheets so each sheet contains the data for each group.

For example, for the "*Order Oktober minta jadi November*" group, data must be taken with the date of entry in October and the November as the targeted finish date. These data are inserted into a single sheet. Then from the grouping then students are asked to fill in the *Analysis IV* column to identify whether the order is completed early, on time or too late. Required information in this column uses the following conditions:

a. EXCL-X

This description is used for orders that are completed earlier than the completed target. EXCL is an abbreviation of the word “excellent”. The 'X' is the day difference from the completed target date and the closing date of *kantung order* (*Tutup KO*). So if the order is completed earlier 2 days, in column Analyze IV written "EXCL -2".

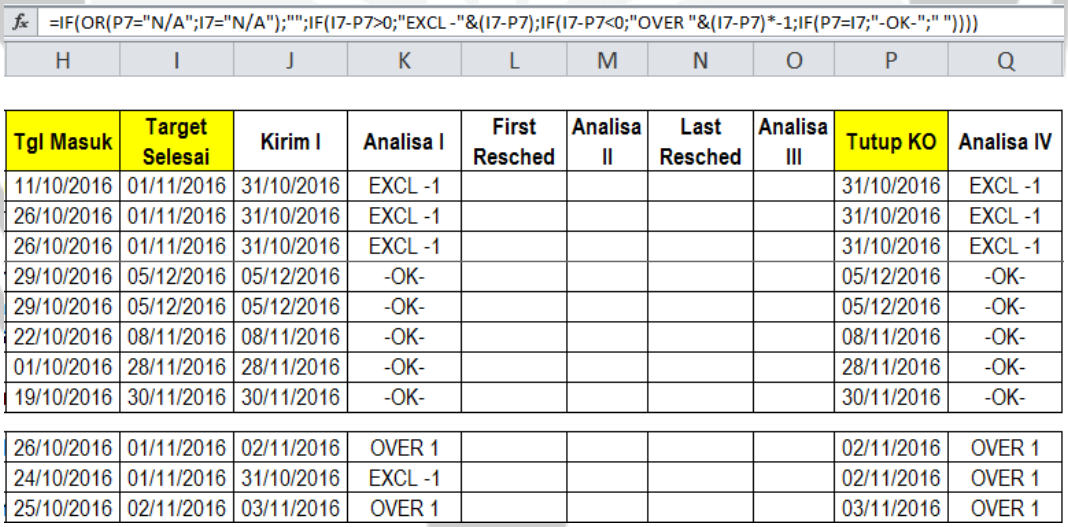
b. –OK–

For orders that are completed on time, they are given "-OK-" in the Analysis IV column. This means the target date is completed equal to the closing date of *kantung order* (KO).

c. OVER X

If the order is completed late or the closing date is longer than the target date is completed, then the description "OVER X" is stated. The 'X' is the difference between the completed target date and the closing date of the knockout. So if the order is delayed for 3 days, the description in column Analyze IV is "OVER 3".

Initially, in completing this data-processing task, Mr. Sasongko analyzes each row one by one by looking at the date of entry, target completion, and the closing date of KO. The description written in the Analysis IV column is typed one by one manually. This way is done in a long time, because there are hundreds or even thousands of orders data. Therefore students use the formula in Microsoft Excel to speed up this process. In this case, an IF function can be used for Ms. Excel that can be seen on the following figure.



H	I	J	K	L	M	N	O	P	Q
Tgl Masuk	**Target Selesai**	**Kirim I**	**Analisa I**	**First Resched**	**Analisa II**	**Last Resched**	**Analisa III**	**Tutup KO**	**Analisa IV**
11/10/2016	01/11/2016	31/10/2016	EXCL -1					31/10/2016	EXCL -1
26/10/2016	01/11/2016	31/10/2016	EXCL -1					31/10/2016	EXCL -1
26/10/2016	01/11/2016	31/10/2016	EXCL -1					31/10/2016	EXCL -1
29/10/2016	05/12/2016	05/12/2016	-OK-					05/12/2016	-OK-
29/10/2016	05/12/2016	05/12/2016	-OK-					05/12/2016	-OK-
22/10/2016	08/11/2016	08/11/2016	-OK-					08/11/2016	-OK-
01/10/2016	28/11/2016	28/11/2016	-OK-					28/11/2016	-OK-
19/10/2016	30/11/2016	30/11/2016	-OK-					30/11/2016	-OK-
26/10/2016	01/11/2016	02/11/2016	OVER 1					02/11/2016	OVER 1
24/10/2016	01/11/2016	31/10/2016	EXCL -1					02/11/2016	OVER 1
25/10/2016	02/11/2016	03/11/2016	OVER 1					03/11/2016	OVER 1

Figure 4.4. Screenshot of Function IF Used in *Olahan Capaian*

After the Analysis IV column is completely filled, the next step is to group orders in the "*Tepat Jadwal*" and "*Tidak Tepat Jadwal*" groups. The "*Tepat Jadwal*" order group is orders with the "EXCL -X" and "-OK-" orders in the Analysis IV column. As for the order with the description "OVER X" grouped into the group "*Tidak Tepat Jadwal*". These results are then reported to the Manager of *Divisi Percetakan* as an evaluation.

4.3.3. Calculation Program for Production Time

At the beginning of the period of industrial practice, students observed how Analyzer, Scheduler (Offset and Post Print), and Job Coordinator work. Then the students find a weakness in work system Scheduler Offset. At that time the Scheduler Offset does the calculation in the scheduling using the conventional calculator and the scheduling is completed in a long time. Whereas if the scheduling results are not immediately given to the production units, then the production process will be stopped and harming the company.

The students then discussed this with the Head of Sub-department of *JSA-Ekspedisi*, Mr. Sasongko. With consideration made by Mr. Sasongko, students are required to create a calculation program in Microsoft Excel that can help the process of calculating in the scheduling offset more quickly. The first step that is done is to identify the daily work Scheduler Offset system. Scheduler Offset performs the scheduling process by referring to the data created by the Analyzer where there is information on the type of product being printed, the type of machine used, the number of *oplah* (the amount of finished product ordered), and the type of katern to be used.

These data were originally calculated manually by the formula written on a small piece of paper sticked in front of the computer screen. Calculated is the duration of order completion by looking at the type of product being printed, the type of machine used, the number of *oplah*, and the type of *katern* for the mold. Calculation of order completion duration is then being used in the scheduling process of each machine to find the actual start time and actual hours (expectations) for work duration to finish every order on each machine. The actual finished hour for an order will be the actual hour starting at the onward order, and so on continuously. However, the Scheduler Offset often runs into difficulties to do this kind of calculation because the lack of skill and method.

This scheduling process becomes very long, and leads to delays in the execution of orders. This also increases the likelihood that the machine will not work at any given time, as it has to wait for the scheduling result. Therefore, students take the initiative to make all counting hours including how to calculate the time cut off due to break and so on by utilizing Microsoft Excel software. Students ask what elements will be input into the calculation process to the Scheduler, so the program can meet the needs of Scheduler.

4.3.4. Calculation Program for Completion Time of an Order

Students also make a program to calculate the duration required for a machine to complete an order. To be able to determine the actual start time and the actual hour of completion, the Offset Scheduler must first calculate the working duration for each order. Duration of work is also calculated manually using the calculator.

There are certain formulas in this calculation, and this process also takes a long time. Therefore, students also create a calculation program that can produce the duration of work required to complete an order. Students ask for any formulas and what inputs are used in the calculations and then put them into Microsoft Excel software.

The steps in making this program is to study the calculation formula commonly used Offset Scheduler in completing this duration count, then identify the elements of any input into each formula.

4.3.5. Plate Making

To assist the CTP team task, the students do the plate making process. This process becomes important, as every order of offset printing must use the plate in the print process. To make one book in the order, the required plate can be more than 20 sheets, where the work for each sheet of book contents with a large plate size is approximately 5 minutes. If plate making process is done in a longer time, then the production process will not start. Therefore, student's support is needed to accelerate the process of plate work, since the plate making operators sometimes have to leave the plate making job to deliver the finished plate to other sub-department, or to do the process of plotting, and activities that interrupt the printing process of other plates.

Step-by-step of plate making, as follows:

a. Prepare an blank plate according to the size requested

On computer control plate printing machine there is a list of orders to be done, each order data contains a description of the type of machine used to print the order. Determination of plate type is based on the type of machine. For Speed Master (SM) machine used small plate, while for machine Rolland (R) used big plate. Before the plate is used the student must ensure the quality of the plate, whether there is damage to the plate or not, the damage in question is scratches and uneven plate surfaces.

Figure 4.5. Blank Plate

b. Put a blank plate on the machine

Before starting the printing process, a blank plate that is ready must be placed on the printing machine first, if there is no plate on the machine, then the machine will issue an alarm alert. The machine can start the printing process if an empty plate is ready.

Figure 4.6. Placing the Blank Plate to the Machine

c. Start the plate making

After the blank plate is ready, the operator (student) must press the start button to start the plate printing process.

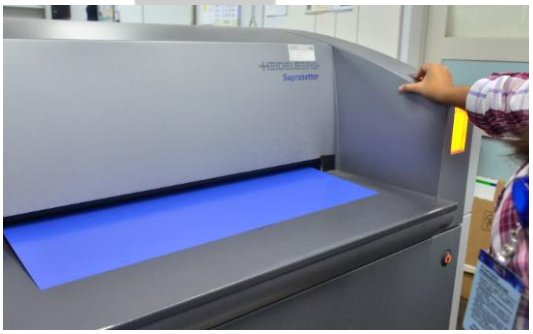


Figure 4.7. Start the Plate Making

Then the student can monitor the printing process inside the machine from the computer screen. On the computer will be shown the percentage of the printing process and also visual of the printing process in the machine. In case of an error on the machine, the computer will display the visual as shown in Figure 4.8. and the software will provide action suggestions to resolve the error.

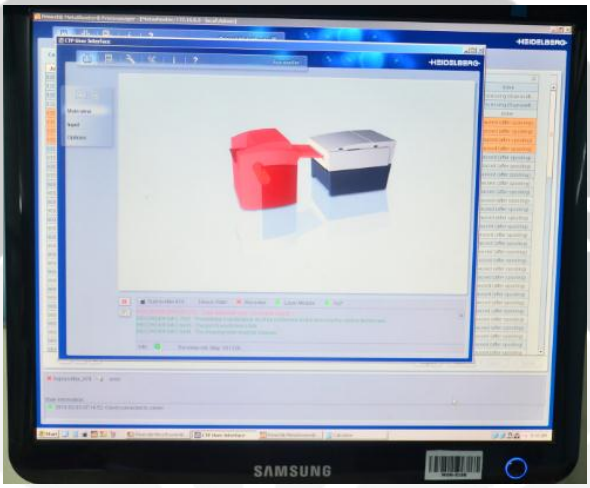


Figure 4.8. Visualization of Plate Making in the Computer

d. Plate Cleaning

After the desired printing image is projected on the plate, the plate will be cleaned with chemical liquid in such a way that the plate will only have the image that is going to be used in printing process.

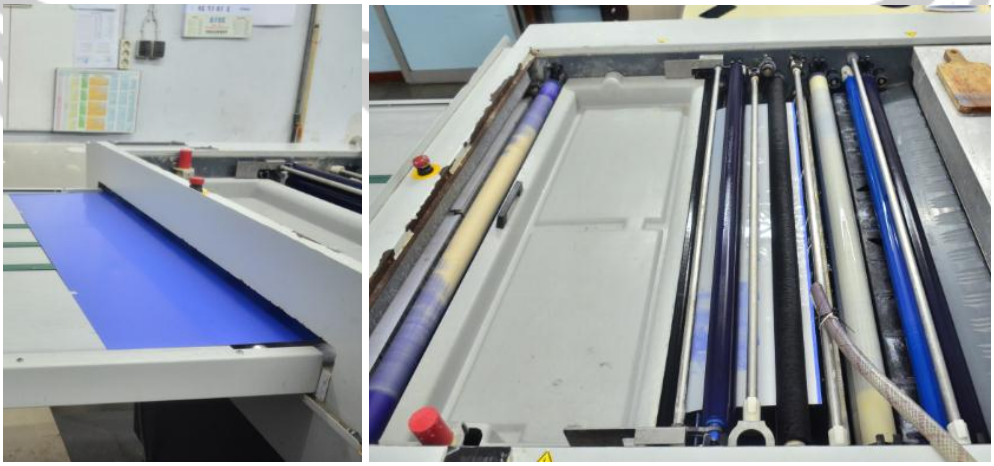


Figure 4.9. Plate Cleaning

e. Inspection for finished plate and packing process

After the plate is printed and cleaned, the student then checks the plate by looking at the name of the order printed on the plate and matched with the order list. For large plate types (for book content), there are 1 to 4 plates for each order name. 1 color print usually only need 1 plate for 1 order name, for 2 color print, there will be 2 plate for 1 order name. As for full color printing, there will be 4 plates consisting of BLACK plate, CYAN plate, MAGENTA plate, and YELLOW plate.

Figure 4.10. Printed Plate

Then, the checked plate will be collected according to order number (No. WO) on the job ticket and packed to be ready delivered to the production process. Students also record plate printing so it can be known when the order plate is completed, how many plates for an order number, and who is responsible for the order.

Figure 4.11. Plate Grouping Based in *No. WO* (Order Number)

4.3.6. Inputing the Archive Data of Plate

Platform records data is a collection of data about any plate that is stored in the warehouse plate. Each plate is stored to the warehouse plate, then the data plate will be inserted into the book list archive plate written manually. Students are requested to assist the tasks of this Plate Warehouse so that the archive data of the plate can be stored in soft file form.

Platform archive data contains information about where the plate is stored. Each shelf is numbered and sequential code making it easier to search for plates when there are reprints. The data also contains the book number of the plate, so for 1 book number it is possible to have multiple sheets of plate. There is also data on the number of cover plates and book contents plate. By entering the arch file data into the soft file, it is expected that the search plate can be done easily.

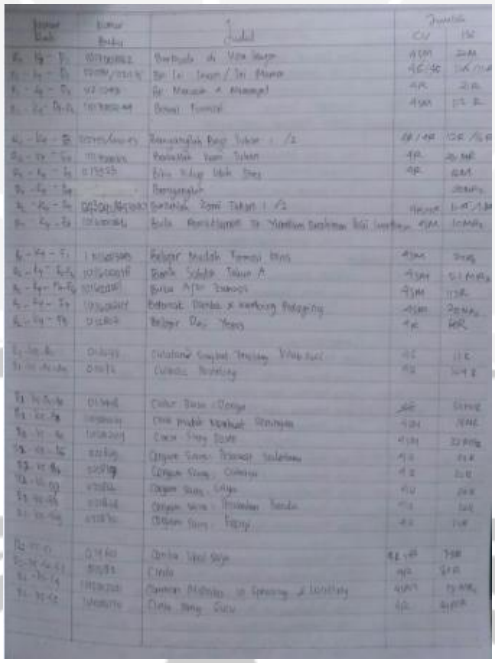


Figure 4.12. Manual Archive Data of Plate

4.3.7. Data Management for *Olah Data Faktur*

Manager of *Divisi Percetakan* and the Secretary have a duty to process invoice (*faktur*) data at PT. Kanisius. However, this process is done very long. Students are then asked to try to do invoice data management in such a way that more quickly utilize the ability to use Microsoft Excel software.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	**Daftar Faktur**													
2	Periode : 01/01/2017 sampai 30/04/2017													
3														
4	**No.Cust**	**NAMA Cust.**	**No WO**	**J U D U L**	**Ukuran**	**Warna Isi**	**Warna Cover**	**Halaman**	**Kertas Isi**	**Kertas Cover**	**Keterangan Jilid**	**Finishing**	**Oplah**	**Harga Sebelum PPN**
2920	08073	aika Sal	911160	D: Nujum Ika	132x194	1/1	4/0	312	Book Paper 72gr 65x100	AP 260 gr. 32.5x48	Perfect		2	121.818
2921	08075	Isman	913364	D: Bolshevik Isman	140x210	1/1	4/0	430	HVS 70 gr. 30.5x45.7	AP 260 gr. 32.5x48	Jahit Benang		2	107.455
2922	08076	Bamba	808565	D: Kartu Doa Bu Bambang	55x150	4/0		1	AP 260 gr. 32.5x48		Potong Jadi	Muka LAM.	150	81.818
2923	08076	Bamba	808583	D: Kartu Nama Bu Bambang	90x55	1/0		1	Linen Putih Tebal 79x109		Potong Jadi		100	40.909
2924	08077	Devita	809041	D: Undangan	210x297	4/4		2	AP 230 gr. 32.5x48		Potong Jadi	MUKA LAM.	22	148.180
2925	08079	niversita	906784	D: Mendidik Generasi Net (Harpi)	148x210	1/1	4/0	142	HVS 70 gr.65x100	Art Paper 260 gr.65x100	Perfect		100	2.090.909
2926	08083	Nurul	916727	D: Dummy Berbagi Zikir Nurul	160x240	1/1	4/4	526	Book Paper 72gr 65x100	AP 150 gr. 32.5x48	g;HC Cetakan		1	205.455
2927												**Total**	**2.787.183**	**6.238.980.011**

Figure 4.13. Data of *Faktur*

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM
1					**LAPORAN ORDER SELESAI**																																			
2					**Periode 01-01-2017 s/d 30-4-2017**																																			
3	**KNS/FORM/COS/ADM/14/01/00**																																					
4															**Oplah**		**Analisa**			**VOOR**			**Biaya Produksi Na Kalkulasi**					**ANALISA**				**Spesifikasi**						
5	**No.**	**No. Buku**	**No. Order**	**Judul**	**Teknologi**	**PIC Voor**	**Pemeriksa Voor**	**Voor diserahkan ke**	**Pemeriksa Voor**	**Keterangan Voor**	**Tgl. Masuk**	**Tgl. Tutup**	**Ket. Faktur**		**Pesan**	**Kirim**	**Eks**	**%-tase**	**Bahan**	**Kerja**	**Total**	**Nilai Faktur Tagi**	**Bahan**	**Bahan +**	**Bahan**	**Kerja**	**Click Char**	**Total**	**Laba vg**	**Laba Aktu**	**Selisih**	**Keterangan**	**Ukuran**	**Warna Isi**	**Warna Cover**	**Halaman**	**Kertas Isi**	**Kertas Cover**	**Keterangan Jilid**	**Finishing**
2818	####		895794	D:Lembaran		Eko Novianto					####	####			3		(3)	(100)			###	###	-	-	-	###	-	###	###	###	###									
2819	####		914701	D: Senatus		Stevany					####	####	20%		3		(3)	(100)			###	###	###	###	-	###	###	###	###	###	###									
2820	####		916307	D: Research		Stevany					####	####	20%		4		(4)	(100)			###	###	###	###	-	###	###	###	###	###	###									
2821	####		916446	TPE Tahunan		Antonius Soegiharto					####	####			###	10	###	(100)	###	###	###	###	###	###	-	###	###	###	###	###	###									
2822	####		916606	Undangan		Helena Prima					####	####			7		(7)	(100)			-	###	###	###	-	###	###	###	###	###	###									
2823	####		916745	7 Pilar Imam		Feryawan					####	####			###		###	(100)			-	###	###	###	-	###	-	###	###	###	###									
2824	####		917182	D: Dummy		Anik Nur					####	####			2		(2)	(100)			###	###	###	###	-	###	###	###	###	###	###									
2825	####		978987	Doaku		Helena Prima					####	####			###	###	###	(7)			###	###	###	###	-	###	-	###	###	###	###									
2826	####		987800	Belajar+Menga		Andy Krisnha					####	####			###		###	(100)	###	###	###	###	###	###	-	###	###	###	###	###	###									
2827	####		991867	Cnaracter		Andy Krisnha					####	####			###		###	(100)	###	###	###	###	###	###	-	###	-	###	###	###	###									
2828	####		992389	Character		Andy Krisnha					####	####			###		###	(100)	###	###	###	###	###	###	-	###	-	###	###	###	###									
2829	####		992400	Character		Andy Krisnha					####	####			###		###	(100)	###	###	###	###	###	###	-	###	-	###	###	###	###									

Figure 4.14. Original Data of *Laporan Order Selesai*

This work was originally to match the invoice data to the completed order report data. In the completed order data report that has not been filled (raw data), there are only data as in Figure 4.13. and the invoice data obtained is as shown in Figure 4.14. Students are then asked to fill in the yellow column in Figure 4.13. by matching the order number (No. WO). This work becomes difficult if done manually, ie typing one by one data in the yellow column in Figure 4.13. by looking for data from Figure 4.14., because there are thousands of data in this process.

Then the student proposes to use lookup function in Microsoft Excel software to simplify this job. Students are also required to create a document of the steps of using the lookup function to complete this work. This document is attached to Appendix 3.

4.3.8. Data Management for *Olah Data Tunggu*

Another task of the Manager of *Divisi Percetakan* is *Olah Data tunggu*. *Data Tunggu* is data that records whenever there is a waiting time on the production process and also disruptions that occur in this process. There are 5 types of waiting time, namely '*Tunggu Kering', 'Tunggu Kertas', 'Tunggu Keterangan', 'Tunggu Order',* and *'Tunggu Plat'*. For interference, there are two types of disturbances recorded, namely *'Gangguan Listrik'* and *'Gangguan Mesin'*.

The raw data provided is shown in Figure 4.15. From the data, the student must find 5 types of waiting time and 2 types of interference that can be found in column "*Nama Kerja*". Therefore, the first step taken by the students is to sort the seven data to be separated from the raw data and perform the recapitulation.

The recording of waiting times and disturbances is performed by operators for Miller, Rolland 2, Old Rolland 4 and New Rolland 4 machines. The collected data is recorded in minutes. Then the students are asked to recapitulate the total waiting time and the disturbance that occurs for each machine, so it can be analyzed what kind of waiting time or the most disruption occurs. It is expected that from the results of this recapitulation, the company can take preventive measures or find a solution for the waiting time and disruption of each machine can be reduced.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	PENERBIT PERCETAKAN KANISIUS													
2	DETAIL PENGGUNAAN MESIN													
3	PERIODE : 01-09-2017 s/d 29-12-2017													
4	005007	Rolland 2 Wrn												
5	Nama Order	Nama Kerja	Jm Mulai	Jm Selesai	Waktu Aktual	Hasil aktual		Produktif	Status	Standar		Efisiensi		Operator
6										Unit	Total	Unit	%	
9078	927189	Siap Cetak Roll 2	29/09/2017 7:45	29/09/2017 7:55	10	1	Plat	ya		15 Mnt	15 Mnt	5,00 Mnt	33,33	Dedy
9079	927189	Cetak Bookpaper 55gr	29/09/2017 7:55	29/09/2017 8:00	5	553	Lbr	ya		0 Lbr	0 Lbr	-5,00 Lbr	0,00	Cahyo
9080	927189	Siap Cetak Roll 2	29/09/2017 8:00	29/09/2017 8:10	10	1	Plat	ya		15 Mnt	15 Mnt	5,00 Mnt	33,33	Dedy
9081	927189	Cetak Bookpaper 55gr	29/09/2017 8:10	29/09/2017 8:15	5	550	Lbr	ya		0 Lbr	0 Lbr	-5,00 Lbr	0,00	Cahyo
9082	927189	Siap Cetak Roll 2	29/09/2017 8:15	29/09/2017 8:25	10	1	Plat	ya		15 Mnt	15 Mnt	5,00 Mnt	33,33	Dedy
9083	927189	Cetak Bookpaper 55gr	29/09/2017 8:25	29/09/2017 8:30	5	275	Lbr	ya		0 Lbr	0 Lbr	-5,00 Lbr	0,00	Cahyo
9084	055101	Tunggu Order Roll 2	29/09/2017 8:30	29/09/2017 9:30	60	0				0 Mnt	0 Mnt	-60,00	0,00	Dedy
9085	055101	Tunggu Order Roll 2	29/09/2017 9:30	29/09/2017 10:00	30	0				0 Mnt	0 Mnt	-30,00	0,00	Cahyo
9086	254203	Siap Cetak Roll 2	29/09/2017 10:00	29/09/2017 10:10	10	1	Plat	ya		15 Mnt	15 Mnt	5,00 Mnt	33,33	Dedy
9087	254203	Cetak Bookpaper 55gr	29/09/2017 10:10	29/09/2017 10:20	10	1,075	Lbr	ya		0 Lbr	0 Lbr	-10,00	0,00	Cahyo

Figure 4.15. Original Data of *Olah Data Tunggu*

4.4. Result of Work

4.4.1. Distribution of *Kantung Order*

The *kantung order* distribution process speeds up the production process, because the information required in performing the production procedure is in the *kantung order*. The *kantung order* provided to each sub-department and unit in the PPIC Department should always be distributed as soon as possible to improve the productivity of each production element.

4.4.2. Data Management of *Olahan Capaian*

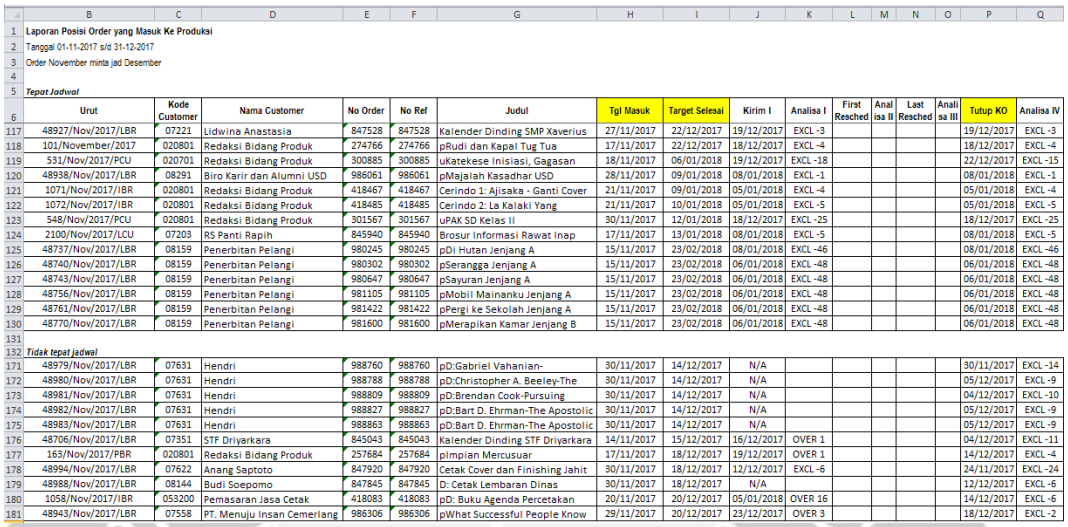
The results of processed achievement is the result of recapitulation of the order on schedule (*tepat jadwal*) and order not on schedule (*tidak tepat jadwal*). These data are obtained from the methodology described in the previous sub-chapter. Data are separated for each sheet by grouping as follows:

a. Order Data on November for November

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Laporan Posisi Order yang Masuk Ke Produksi																
2	Tanggal 01-11-2017 s/d 30-11-2018																
3	Order November minta jad November																
4																	
5	*Tepat Jadwal*																
6	No	Urut	Kode Customer	Nama Customer	No Order	No Ref	Judul	Tgl Masuk	Target Selesai	Kirim I	Analisa I	First Resched	Analisa II	Last Resched	Analisa III	Tutup KO	Analisa IV
292		48897/Nov/2017/LBR	08288	Heri Pratmoko	984429	984429	pD: Keplek Ilat FC Heri	24/11/2017	30/11/2017	N/A						30/11/2017	-OK-
293		48917/Nov/2017/LBR	08113	Hana	847386	847386	D:Kartu Nama BNV 3 Nama	27/11/2017	30/11/2017	N/A						30/11/2017	-OK-
294		48920/Nov/2017/LBR	07384	SMA Stelladuce 1	847425	847425	D: ID Card Susulan SMA Stece 1	27/11/2017	30/11/2017	N/A						30/11/2017	-OK-
295		48941/Nov/2017/LBR	07685	SMA Seminari St. Petrus Canisius Mertoyudan	847621	847621	: Koran Jendela	28/11/2017	30/11/2017	02/12/2017	OVER 2					30/11/2017	-OK-
296		48946/Nov/2017/LBR	07695	Fakultas Teologi UKDW	847667	847667	D:Sisipan Jurnal Gema Teologi	29/11/2017	30/11/2017	N/A						30/11/2017	-OK-
297		1097/Nov/2017/IBR	020701	Redaksi Bidang Produk Gerejawi	419260	419260	D: Proof BKBLII Pelayanan Profesional Gereja Katolik & Penyalahgunaan Wewenang Jabatan	30/11/2017	30/11/2017	N/A						30/11/2017	-OK-
298																	
299	*Tidak tepat jadwal*																
300		48594/Nov/2017/LBR	07985	Ferrel	844183	844183	D: ID Card BRI Ferrel	07/11/2017	07/11/2017	N/A						08/11/2017	OVER 1
301		91/Nov/2017/ICU	053200	Pemasaran Jasa Cetak	416889	416889	pPerbaikan Buku Edukasi 1 Anny (WO 955780)	02/11/2017	09/11/2017	10/11/2017	OVER 1					10/11/2017	OVER 1
302		2084/Nov/2017/LCU	07557	Paper Plane Imam Wijaya	843924	843924	Cetak Ulang Cover RPUL Imam	04/11/2017	09/11/2017	N/A						14/11/2017	OVER 5
303		2082/Nov/2017/LCU	08254	PT. IGP Internasional	843849	843849	L17001309 IGP Amscan Favor Box Popcorn SM NEW PINK AMSC IGP	04/11/2017	10/11/2017	11/11/2017	OVER 1					11/11/2017	OVER 1
304		48576/Nov/2017/LBR	08254	PT. IGP Internasional	844062	844062	L17001309 IGP Amscan Favor Box Popcorn NEW PURPLE AMS IGP	06/11/2017	10/11/2017	11/11/2017	OVER 1					11/11/2017	OVER 1
305		2083/Nov/2017/LCU	08254	PT. IGP Internasional	843867	843867	L17001309 IGP Amscan Favor Box Popcorn CARIBEAN BLUE AMSC IGP	04/11/2017	10/11/2017	14/11/2017	OVER 4					14/11/2017	OVER 4
306		1046/Nov/2017/IBR	055205	Produksi Digital Printing OCE & Indigo	417785	417785	Bon Stok Kertas OCE	14/11/2017	14/11/2017	15/11/2017	OVER 1					15/11/2017	OVER 1
307		1042/Nov/2017/IBR	020801	Redaksi Bidang Produk Kependidikan & Umum	417646	417646	pDummy Tudung Lampu Ayah (HC)	13/11/2017	15/11/2017	16/11/2017	OVER 1					16/11/2017	OVER 1
308		1043/Nov/2017/IBR	020801	Redaksi Bidang Produk Kependidikan & Umum	417682	417682	pDummy Kuncir Air Mancur (HC)	13/11/2017	15/11/2017	16/11/2017	OVER 1					16/11/2017	OVER 1

Figure 4.16. Screenshot of Order Data on November for November

b. Order Data on November for December



Laporan Posisi Order yang Masuk Ke Produksi
Tanggal 01-11-2017 s/d 31-12-2017
Order November minta jad Desember

Tepat Jadwal

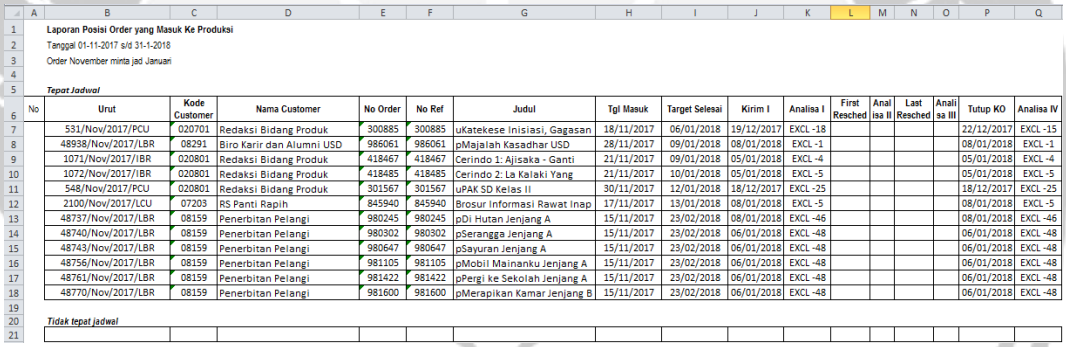
Urut	Kode Customer	Nama Customer	No Order	No Ref	Judul	Tgl Masuk	Target Selesai	Kirim I	Analisa I	First Resched	Analisa II	Last Resched	Analisa III	Tutup KO	Analisa IV
48927/Nov/2017/LBR	07221	Lidwina Anastasia	847528	847528	Kalender Dinding SMP Xaverius	27/11/2017	22/12/2017	19/12/2017	EXCL -3					19/12/2017	EXCL -3
101/November/2017	020801	Redaksi Bidang Produk	274766	274766	pRudi dan Kapal Tug Tua	17/11/2017	22/12/2017	18/12/2017	EXCL -4					18/12/2017	EXCL -4
531/Nov/2017/PCU	020701	Redaksi Bidang Produk	300885	300885	uKatekese Inisiasi, Gagasan	18/11/2017	06/01/2018	19/12/2017	EXCL -18					22/12/2017	EXCL -15
48938/Nov/2017/LBR	08291	Biro Karir dan Alumni USD	986061	986061	pMajalah Kasadhar USD	28/11/2017	09/01/2018	08/01/2018	EXCL -1					08/01/2018	EXCL -1
1071/Nov/2017/IBR	020801	Redaksi Bidang Produk	418467	418467	Cerindo 1: Ajisaka - Ganti Cover	21/11/2017	09/01/2018	05/01/2018	EXCL -4					05/01/2018	EXCL -4
1072/Nov/2017/IBR	020801	Redaksi Bidang Produk	418485	418485	Cerindo 2: La Kalaki Yang	21/11/2017	10/01/2018	05/01/2018	EXCL -5					05/01/2018	EXCL -5
548/Nov/2017/PCU	020801	Redaksi Bidang Produk	301567	301567	uPAK SD Kelas II	30/11/2017	12/01/2018	18/12/2017	EXCL -25					18/12/2017	EXCL -25
2100/Nov/2017/LCU	07203	RS Panti Rapih	845940	845940	Brosur Informasi Rawat Inap	17/11/2017	13/01/2018	08/01/2018	EXCL -5					08/01/2018	EXCL -5
48737/Nov/2017/LBR	08159	Penerbitan Pelangi	980245	980245	pDi Hutan Jenjang A	15/11/2017	23/02/2018	08/01/2018	EXCL -46					08/01/2018	EXCL -46
48740/Nov/2017/LBR	08159	Penerbitan Pelangi	980302	980302	pSerangga Jenjang A	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48
48743/Nov/2017/LBR	08159	Penerbitan Pelangi	980647	980647	pSayuran Jenjang A	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48
48756/Nov/2017/LBR	08159	Penerbitan Pelangi	981105	981105	pMobil Mainanku Jenjang A	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48
48761/Nov/2017/LBR	08159	Penerbitan Pelangi	981422	981422	pPergi ke Sekolah Jenjang A	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48
48770/Nov/2017/LBR	08159	Penerbitan Pelangi	981600	981600	pMerapikan Kamar Jenjang B	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48

Tidak tepat jadwal

Urut	Kode Customer	Nama Customer	No Order	No Ref	Judul	Tgl Masuk	Target Selesai	Kirim I	Analisa I	First Resched	Analisa II	Last Resched	Analisa III	Tutup KO	Analisa IV
48979/Nov/2017/LBR	07631	Hendri	988760	988760	pD:Gabriel Vahanian-	30/11/2017	14/12/2017	N/A						30/11/2017	EXCL -14
48980/Nov/2017/LBR	07631	Hendri	988788	988788	pD:Christopher A. Beeley-The	30/11/2017	14/12/2017	N/A						05/12/2017	EXCL -9
48981/Nov/2017/LBR	07631	Hendri	988809	988809	pD:Brendan Cook-Pursuing	30/11/2017	14/12/2017	N/A						04/12/2017	EXCL -10
48982/Nov/2017/LBR	07631	Hendri	988827	988827	pD:Bart D. Ehrman-The Apostolic	30/11/2017	14/12/2017	N/A						05/12/2017	EXCL -9
48983/Nov/2017/LBR	07631	Hendri	988863	988863	pD:Bart D. Ehrman-The Apostolic	30/11/2017	14/12/2017	N/A						05/12/2017	EXCL -9
48706/Nov/2017/LBR	07351	STF Driyarkara	845043	845043	Kalender Dinding STF Driyarkara	14/11/2017	15/12/2017	16/12/2017	OVER 1					04/12/2017	EXCL -11
163/Nov/2017/PBR	020801	Redaksi Bidang Produk	257684	257684	pImpian Mercusuar	17/11/2017	18/12/2017	19/12/2017	OVER 1					14/12/2017	EXCL -4
48994/Nov/2017/LBR	07622	Anang Saptoto	847920	847920	Cetak Cover dan Finishing Jahit	30/11/2017	18/12/2017	12/12/2017	EXCL -6					24/11/2017	EXCL -24
48988/Nov/2017/LBR	08144	Budi Soepomo	847845	847845	D: Cetak Lembaran Dinas	30/11/2017	18/12/2017	N/A						12/12/2017	EXCL -6
1058/Nov/2017/IBR	053200	Pemasaran Jasa Cetak	418083	418083	pD: Buku Agenda Percetakan	20/11/2017	20/12/2017	05/01/2018	OVER 16					14/12/2017	EXCL -6
48943/Nov/2017/LBR	07558	PT. Menuju Insan Cemerlang	986306	986306	pWhat Successful People Know	29/11/2017	20/12/2017	23/12/2017	OVER 3					18/12/2017	EXCL -2

Figure 4.17. Screenshot of Order Data on November for December

c. Order Data on November for January



Laporan Posisi Order yang Masuk Ke Produksi
Tanggal 01-11-2017 s/d 31-1-2018
Order November minta jad Januari

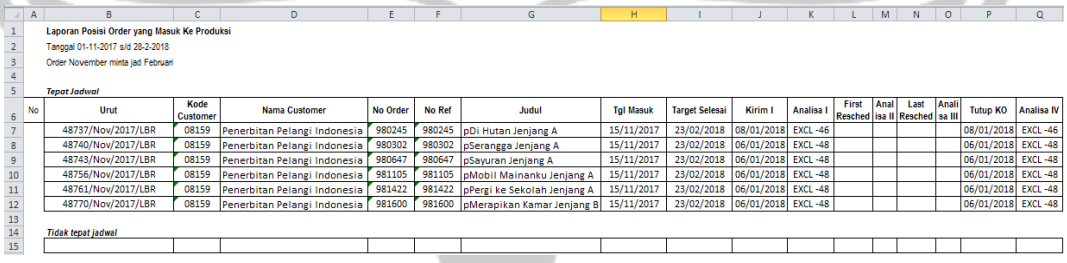
Tepat Jadwal

No	Urut	Kode Customer	Nama Customer	No Order	No Ref	Judul	Tgl Masuk	Target Selesai	Kirim I	Analisa I	First Resched	Analisa II	Last Resched	Analisa III	Tutup KO	Analisa IV
	531/Nov/2017/PCU	020701	Redaksi Bidang Produk	300885	300885	uKatekese Inisiasi, Gagasan	18/11/2017	06/01/2018	19/12/2017	EXCL -18					22/12/2017	EXCL -15
	48938/Nov/2017/LBR	08291	Biro Karir dan Alumni USD	986061	986061	pMajalah Kasadhar USD	28/11/2017	09/01/2018	08/01/2018	EXCL -1					08/01/2018	EXCL -1
	1071/Nov/2017/IBR	020801	Redaksi Bidang Produk	418467	418467	Cerindo 1: Ajisaka - Ganti	21/11/2017	09/01/2018	05/01/2018	EXCL -4					05/01/2018	EXCL -4
	1072/Nov/2017/IBR	020801	Redaksi Bidang Produk	418485	418485	Cerindo 2: La Kalaki Yang	21/11/2017	10/01/2018	05/01/2018	EXCL -5					05/01/2018	EXCL -5
	548/Nov/2017/PCU	020801	Redaksi Bidang Produk	301567	301567	uPAK SD Kelas II	30/11/2017	12/01/2018	18/12/2017	EXCL -25					18/12/2017	EXCL -25
	2100/Nov/2017/LCU	07203	RS Panti Rapih	845940	845940	Brosur Informasi Rawat Inap	17/11/2017	13/01/2018	08/01/2018	EXCL -5					08/01/2018	EXCL -5
	48737/Nov/2017/LBR	08159	Penerbitan Pelangi	980245	980245	pDi Hutan Jenjang A	15/11/2017	23/02/2018	08/01/2018	EXCL -46					08/01/2018	EXCL -46
	48740/Nov/2017/LBR	08159	Penerbitan Pelangi	980302	980302	pSerangga Jenjang A	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48
	48743/Nov/2017/LBR	08159	Penerbitan Pelangi	980647	980647	pSayuran Jenjang A	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48
	48756/Nov/2017/LBR	08159	Penerbitan Pelangi	981105	981105	pMobil Mainanku Jenjang A	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48
	48761/Nov/2017/LBR	08159	Penerbitan Pelangi	981422	981422	pPergi ke Sekolah Jenjang A	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48
	48770/Nov/2017/LBR	08159	Penerbitan Pelangi	981600	981600	pMerapikan Kamar Jenjang B	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48

Tidak tepat jadwal

Figure 4.18. Screenshot of Order Data on November for January

d. Order Data on November for February



Laporan Posisi Order yang Masuk Ke Produksi
Tanggal 01-11-2017 s/d 28-2-2018
Order November minta jad Februari

Tepat Jadwal

No	Urut	Kode Customer	Nama Customer	No Order	No Ref	Judul	Tgl Masuk	Target Selesai	Kirim I	Analisa I	First Resched	Analisa II	Last Resched	Analisa III	Tutup KO	Analisa IV
	48737/Nov/2017/LBR	08159	Penerbitan Pelangi Indonesia	980245	980245	pDi Hutan Jenjang A	15/11/2017	23/02/2018	08/01/2018	EXCL -46					08/01/2018	EXCL -46
	48740/Nov/2017/LBR	08159	Penerbitan Pelangi Indonesia	980302	980302	pSerangga Jenjang A	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48
	48743/Nov/2017/LBR	08159	Penerbitan Pelangi Indonesia	980647	980647	pSayuran Jenjang A	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48
	48756/Nov/2017/LBR	08159	Penerbitan Pelangi Indonesia	981105	981105	pMobil Mainanku Jenjang A	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48
	48761/Nov/2017/LBR	08159	Penerbitan Pelangi Indonesia	981422	981422	pPergi ke Sekolah Jenjang A	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48
	48770/Nov/2017/LBR	08159	Penerbitan Pelangi Indonesia	981600	981600	pMerapikan Kamar Jenjang B	15/11/2017	23/02/2018	06/01/2018	EXCL -48					06/01/2018	EXCL -48

Tidak tepat jadwal

Figure 4.19. Screenshot of Order Data on November for February

e. Order Data on December for December

Laporan Posisi Order yang Masuk Ke Produksi
Tanggal 01-12-2017 s/d 31-12-2017
Order Desember minta jadi Desember

Tepat Jadwal

Urut	Kode Customer	Nama Customer	No Order	No Ref	Judul	Tgl Masuk	Target Selesai	Kirim I	Analisa I	First Resched	Analisa II	Last Resched	Analisa III	Tutup KO	Analisa IV
49159/Dec/2017/LBR	07590	Gereja St. Petrus Paulus	992325	992325	pBuku Misa Natal Paroki Klepu 2017	15/12/2017	22/12/2017	##########	-OK-					22/12/2017	-OK-
49172/Dec/2017/LBR	07206	Majalah Utusan-Rohani	992482	992482	pRohani Januari 2018	16/12/2017	22/12/2017	##########	-OK-					22/12/2017	-OK-
1141/Dec/2017/IBR	050113	Produksi Digital	420480	420480	Stok Opname Desember 2017	22/12/2017	23/12/2017	N/A						22/12/2017	EXCL -1
49188/Dec/2017/LBR	08302	Suhendrasmo	850027	850027	D: Undangan Perayaan Emas	19/12/2017	23/12/2017	N/A						22/12/2017	EXCL -1
49192/Dec/2017/LBR	07212	Rm. E.Azismardopo Subr	992688	992688	pD: Harta Paling Tak Lekang Oleh Waktu	20/12/2017	23/12/2017	##########	EXCL -1					22/12/2017	EXCL -1
49194/Dec/2017/LBR	07711	Wulan	850166	850166	D: Undangan Selapanan Wulan	20/12/2017	23/12/2017	N/A						21/12/2017	EXCL -2
105/Desember/2017	020204	Redaksi Produk Sekolah	258469	258469	pBuku Tematik K 13 - V F Kator dan	15/12/2017	23/12/2017	##########	-OK-					23/12/2017	-OK-
49198/Dec/2017/LBR	08282	PT UDAKA INDONESIA	850205	850205	D:ID Card Tambahan PT Udaka	20/12/2017	23/12/2017	##########	-OK-					23/12/2017	-OK-
49207/Dec/2017/LBR	08152	Yashinta Winda	850269	850269	D: Foto Icha	21/12/2017	23/12/2017	N/A						23/12/2017	-OK-
49174/Dec/2017/LBR	07251	CV Aditya Media	992503	992503	pD:Jurnal Cakrawala Hukum	16/12/2017	23/12/2017	##########	-OK-					23/12/2017	-OK-
1135/Dec/2017/IBR	050132	Pasca Cetak B	420305	420305	Perubahan Kalender Duduk Tribun	19/12/2017	26/12/2017	N/A						22/12/2017	EXCL -4

Tidak tepat jadwal

1133/Dec/2017/IBR	055205	Produksi Digital Printing	420248	420248	Bon Stok Kertas OCE	18/12/2017	20/12/2017	N/A						23/12/2017	OVER 3
49056/Dec/2017/LBR	07607	Indonesia Buku	990345	990345	pD:Seratus Buku Sastra (Cover Tom	05/12/2017	20/12/2017	N/A						23/12/2017	OVER 3
49058/Dec/2017/LBR	07607	Indonesia Buku	990420	990420	pD: Buku Pena Ginggi Meraih - Indonesia	05/12/2017	20/12/2017	N/A						23/12/2017	OVER 3
49059/Dec/2017/LBR	07607	Indonesia Buku	990569	990569	pD: Seabad Pers Kebangsaan Indonesia	05/12/2017	20/12/2017	N/A						23/12/2017	OVER 3
49117/Dec/2017/LBR	07296	Gereja St Petrus Paulus	991504	991504	pNafiri Natal 2017	12/12/2017	20/12/2016	##########	OVER 365					20/12/2017	OVER 365
1124/Dec/2017/IBR	010700	Pembelia	420006	420006	Kertas HVS A4	14/12/2017	15/12/2017	##########	OVER 5					20/12/2017	OVER 5
49085/Dec/2017/LBR	07557	Paper Plane Imam Wija	848563	848563	Cover Etika Profesi & Hukum	07/12/2017	13/12/2017	N/A						19/12/2017	OVER 6
1115/Dec/2017/IBR	010300	Sekretariat Perusahaan	419804	419804	Desain dan Cetak Spanduk Natal 2017	12/12/2017	15/12/2017	N/A						22/12/2017	OVER 7

Figure 4.20. Screenshot of Order Data on December for December

f. Order Data on December for January

Laporan Posisi Order yang Masuk Ke Produksi
Tanggal 01-12-2017 s/d 31-1-2018
Order Desember minta jadi Januari

Tepat Jadwal

No	Urut	Kode Customer	Nama Customer	No Order	No Ref	Judul	Tgl Masuk	Target Selesai	Kirim I	Analisa I	First Resched	Analisa II	Last Resched	Analisa III	Tutup KO	Analisa IV
77	193/Dec/2017/PBR	020801	Redaksi Bidang Produk	294621	294621	pMemetri Basa Jawa Kelas III	14/12/2017	24/01/2018	N/A						N/A	
78	567/Dec/2017/PCU	020701	Redaksi Bidang Produk	302481	302481	uPersiapan Krisma Suci, Buku	20/12/2017	24/01/2018	N/A						N/A	
79	49103/Dec/2017/LBR	07553	CCES	991120	991120	pBuku Modul Pengembangan	08/12/2017	24/01/2018	N/A						N/A	
80	97/Dec/2017/ICU	030409	Penjualan Personal CSC	420145	420145	Kartu KRC	16/12/2017	25/01/2018	N/A						N/A	
81	180/Dec/2017/PBR	020701	Redaksi Bidang Produk	256564	256564	pPaulus Pewarta Bangsa-	09/12/2017	26/01/2018	N/A						N/A	
82	177/Dec/2017/PBR	020701	Redaksi Bidang Produk	267702	267702	pSimson Abdi Allah yang	02/12/2017	26/01/2018	N/A						N/A	
83	194/Dec/2017/PBR	020801	Redaksi Bidang Produk	294603	294603	pMemetri Basa Jawa Kelas II	14/12/2017	26/01/2018	N/A						N/A	
84	179/Dec/2017/PBR	020701	Redaksi Bidang Produk	257228	257228	pNuh Orang Baik dan Taat	09/12/2017	27/01/2018	N/A						N/A	
85	181/Dec/2017/PBR	020701	Redaksi Bidang Produk	288385	288385	pDaud si Pemberani yang	09/12/2017	27/01/2018	N/A						N/A	
86	178/Dec/2017/PBR	020701	Redaksi Bidang Produk	246008	246008	pYunus Pengubah Akhlak	09/12/2017	29/01/2018	N/A						N/A	
87	169/Dec/2017/PBR	020901	Redaksi Penerbitan	255547	255547	pMenelusuri Identitas	05/12/2017	29/01/2018	N/A						N/A	
88	182/Dec/2017/PBR	020701	Redaksi Bidang Produk	287386	287386	pPetrus sang Penjala Manusia	09/12/2017	29/01/2018	N/A						N/A	
89	174/Dec/2017/PBR	020701	Redaksi Bidang Produk	256827	256827	pMusa sang Pemimpin	02/12/2017	30/01/2018	N/A						N/A	
90	170/Dec/2017/PBR	020901	Redaksi Penerbitan	258209	258209	pSetting Down The Struggles of	06/12/2017	30/01/2018	N/A						N/A	
91	175/Dec/2017/PBR	020701	Redaksi Bidang Produk	284343	284343	pAbraham Bapa Orang	08/12/2017	30/01/2018	N/A						N/A	
92	49143/Dec/2017/LBR	08307	Bendahara Pengeluaran	991942	991942	pD: RPJMD 2017-2022 BAPEDA	14/12/2017	30/01/2018	N/A						N/A	
93	1139/Dec/2017/IBR	020801	Redaksi Bidang Produk	420387	420387	pKatalog PT 2018	22/12/2017	31/01/2018	N/A						N/A	

Tidak tepat jadwal

5	49210/Dec/2017/LBR	08221	Hariyasin	850344	850344	D: Poster Foto Hariyasin	23/12/2017	03/01/2018	N/A						##########	OVER 1

Figure 4.21. Screenshot of Order Data on December for January

4.4.3. Calculation Program for Production Time

Production Time Calculation Program is done taking into account the calculation requirements provided by Scheduler Offset from student observation. Figure 4.22. shows the display of programs that have been created. How to use this program is to enter the information in section A (red box) according to the description that has been made. Then section B (green box) is the timing process with simple Excel formulas. Then the final hit result will come out in section C (blue box). Scheduler Offset has implemented this program in everyday scheduling work and the result is a significant reduction of work time so it can speed up the scheduling process as well as speed up the whole production process.

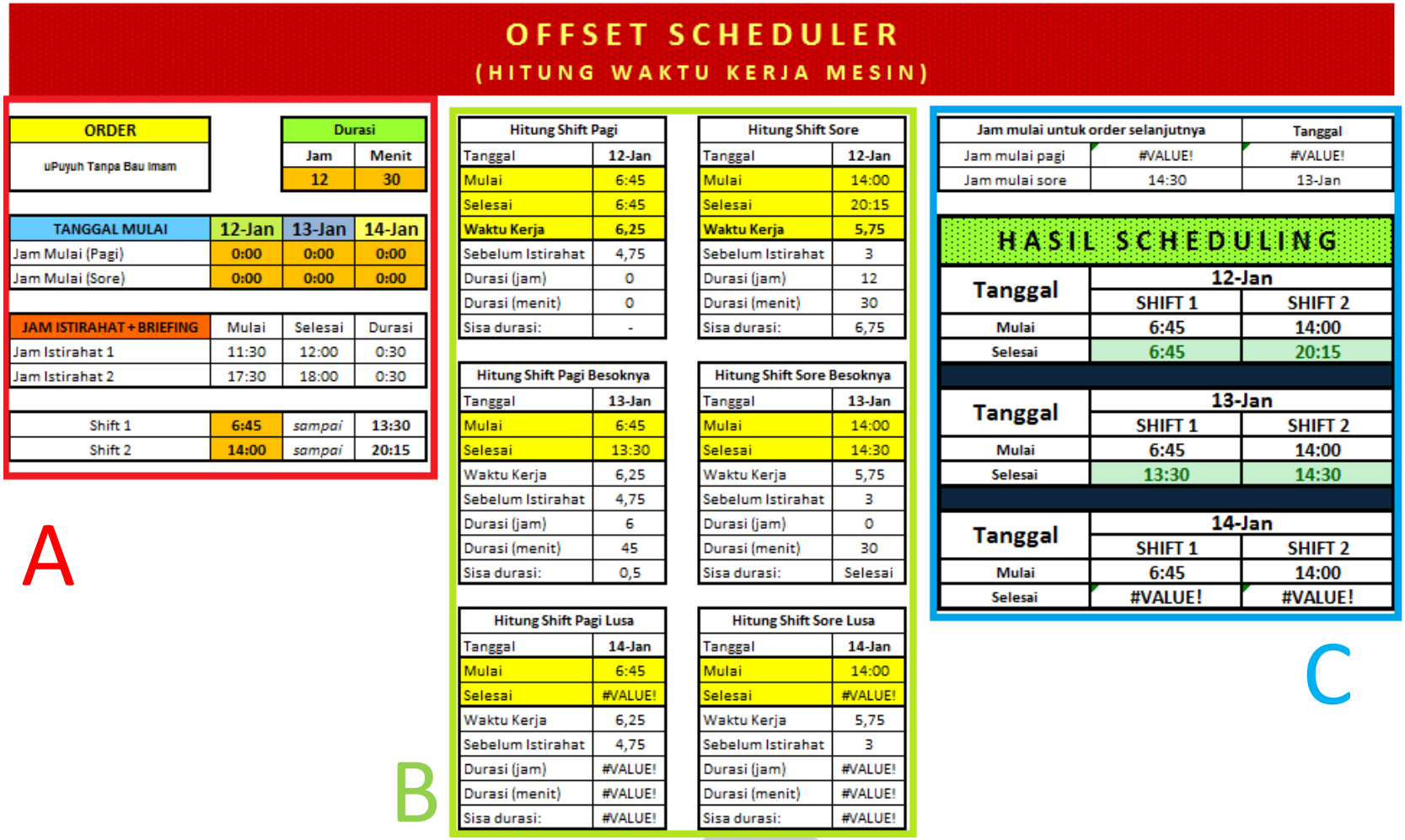


Figure 4.22. Screenshot of Calculation Program for Production Time

S4

=(IF(ROUNDUP($P4;0)-$P4=0,25;(ROUNDDOWN($P4;0)+2)*$Q4;IF(ROUNDUP($P4;0)-$P4=0,5;(ROUNDDOWN($P4;0)+1)*$Q4;IF(ROUNDUP($P4;0)-$P4=0,75;(ROUNDDOWN($P4;0)+1)*$Q4;ROUNDDOWN($P4;0)*$Q4))))+($P4*$R4)

Mesin: MILLER

No. WO	Nama	Pemesan	Tanggal Jadi	Ukuran Jadi	Jenis Kertas	Kecepatan (lembar/jam)	Jumlah Plat	Oplah	Insheet	Keluar Cetak	Warna	Jumlah Sisi	Out Cetak	Katern	Siap Cetak (menit)	Cetak/katern (menit)	Durasi Total (menit)	Durasi Total (jam)
994662	uPuyuh Tanpa Bau Imam	Paper Plane Imam Wijaya	19/01/2018	150x230	Art Paper 100 gr. 65x90	5500		2000	100	80	4/4	2	2080	5,75	15	22,91	236,73	3,95
994662	ABCD	DEFG	19/01/2018	150x230	HVS 70 gr. 65x100 IK Mirage	5500		1500	70	100	4/4	2	1600	12	15	17,13	385,53	6,43
421386	Coba Lagi Aksa Berama Pu	Santi	20/12/2017	350x500	Ivory 190 gr.65x100	5500		500	60	30	4/4	2	530	8	15	6,11	168,87	2,81

Mesin: R4B

No. WO	Nama	Pemesan	Tanggal Jadi	Ukuran Jadi	Jenis Kertas	Kecepatan (lembar/jam)	Jumlah Plat	Oplah	Insheet	Keluar Cetak	Warna	Jumlah Sisi	Out Cetak	Katern	Siap Cetak (menit)	Cetak/katern (menit)	Durasi Total (menit)	Durasi Total (jam)
994662	uPuyuh Tanpa Bau Imam	Paper Plane Imam Wijaya	19/01/2018	150x230	Art Paper 100 gr. 65x90	7500		2000	100	80	4/4	2	2080	9,75	20	16,80	727,60	12,13
994662	ABCD	DEFG	19/01/2018	150x230	HVS 70 gr. 65x100 IK Mirage	7500		1500	70	100	4/4	2	1600	12	20	12,56	781,44	13,02
421386	Coba Lagi Aksa Berama Pu	Santi	20/12/2017	350x500	Ivory 190 gr.65x100	7500		500	60	30	4/4	2	530	8	20	4,48	391,68	6,53

Mesin: R4L

No. WO	Nama	Pemesan	Tanggal Jadi	Ukuran Jadi	Jenis Kertas	Kecepatan (lembar/jam)	Jumlah Plat	Oplah	Insheet	Keluar Cetak	Warna	Jumlah Sisi	Out Cetak	Katern	Siap Cetak (menit)	Cetak/katern (menit)	Durasi Total (menit)	Durasi Total (jam)
994662	uPuyuh Tanpa Bau Imam	Paper Plane Imam Wijaya	19/01/2018	150x230	Art Paper 100 gr. 65x90	7500		2000	100	80	4/4	2	2080	9,75	25	16,80	827,60	13,79
994662	ABCD	DEFG	19/01/2018	150x230	HVS 70 gr. 65x100 IK Mirage	7500		1500	70	100	4/4	2	1600	12	25	12,56	901,44	15,02
421386	Coba Lagi Aksa Berama Pu	Santi	20/12/2017	350x500	Ivory 190 gr.65x100	7500		500	60	30	4/4	2	530	8	25	4,48	471,68	7,86

Mesin: R2

No. WO	Nama	Pemesan	Tanggal Jadi	Ukuran Jadi	Jenis Kertas	Kecepatan (lembar/jam)	Jumlah Plat	Oplah	Insheet	Keluar Cetak	Warna	Jumlah Sisi	Out Cetak	Katern	Siap Cetak (menit)	Cetak/katern (menit)	Durasi Total (menit)	Durasi Total (jam)
994662	uPuyuh Tanpa Bau Imam	Paper Plane Imam Wijaya	19/01/2018	150x230	Art Paper 100 gr. 65x90	5500		2000	100	80	4/4	2	2080	9,75	20	22,91	846,73	14,11
994662	ABCD	DEFG	19/01/2018	150x230	HVS 70 gr. 65x100 IK Mirage	5500		1500	70	100	4/4	2	1600	12	20	17,13	891,05	14,85
421386	Coba Lagi Aksa Berama Pu	Santi	20/12/2017	350x500	Ivory 190 gr.65x100	5500		500	60	30	4/4	2	530	8	20	6,11	417,75	6,96

Mesin: SM

Catatan: Kalau mesin Miller, sekali cetak bisa 2 sisi, sehingga waktu cetaknya 2x lebih cepat dan siap cetaknya hanya 1 sampai 3 kali

No. WO	Nama	Pemesan	Tanggal Jadi	Ukuran Jadi	Jenis Kertas	Kecepatan (lembar/jam)	Jumlah Plat	Oplah	Insheet	Keluar Cetak	Warna	Jumlah Sisi	Out Cetak	Katern	Siap Cetak (menit)	Cetak/katern (menit)	Durasi Total (menit)	Durasi Total (jam)
994662	uPuyuh Tanpa Bau Imam	Paper Plane Imam Wijaya	19/01/2018	150x230	Art Paper 100 gr. 65x90	10000	96	900	20	80	1/0	1	980	9,75	10	5,52	153,82	2,56
994662	ABCD	DEFG	19/01/2018	150x230	HVS 70 gr. 65x100 IK Mirage	10000	50	1500	70	100	4/4	2	1600	12	10	9,42	466,08	7,77
421386	Coba Lagi Aksa Berama Pu	Santi	20/12/2017	350x500	Ivory 190 gr.65x100	10000	12	500	60	30	4/4	2	530	8	10	3,36	213,76	3,56

Figure 4.23. Screenshot of Calculation Program for Completion Time of an Order

4.4.4. Calculation Program for Completion Time of an Order

Calculation Program for Completion Time of an Order is used in determining the duration (hours) that a machine needs to complete an order according to the specifications that exist on the job ticket. In Figure 4.22. can be seen there are columns of information used as input data calculate the duration where the count results duration processed and shown the results on the yellow column. So on the use of this program, Offset Scheduler only need to fill in columns other than yellow columns and then the results will arrive in the columns are yellow. Calculate the duration of completion order is used in determining the duration (hours) required a machine to complete an order according to the specifications on the job ticket. In Figure 4.22. can be seen there are columns of information used as input data calculate the duration where the count results duration processed and shown the results on the yellow column. So on the use of this program, Scheduler Offset only need to fill in columns other than yellow columns and then the results will arrive in the columns are yellow. Calculate the duration of this order will be used in calculating the production time as described in the previous points.

4.4.5. Plate Making

The printed plate is a collection of packs that have been packaged for later sent to the Sub-department of Logistics. Plates delivered to the Sub-department of Logistics will be grouped by machine type. Students deliver a plate that has been packed with a bag of orders. This indicates that the finished plate printing process and the ready plate are taken from the Sub-department of Logistics and ready for use in the printing process.

Figure 4.24. Finished Plate

4.4.6. Inputing the Archive Data of Plate

The results of transferring archived data from archived books into soft files are as follows:

	B	C	D	E	F
2	Nomor Rak	Nomor Buku	Judul	Jumlah	
3				Cover	Isi
494	R1-K14-B1-B10	1016002134	Ensiklopedia Penya	4SM	
495	R1-K14-C1-C4		Ensiklopedia Penya	4SM	
496	R1-K14-C5	027839	Etika Politik dalam Kontek Inc		46R
497	R1-K14-C6	015203	Etika Pastoral	4R	31MR2
498	R1-K14-C7	1016002175	Etika Profesi Akunt	4SM	36R2
499	R1-K14-C8	1014000014	Ensiklik Lumen Fid	4R	14RM
500	R1-K14-C9	013461	Ekaristi	4R	20R2
501					
502	R1-K14-D1	044640	Early Bird: All Abou	5G	5R
503	R1-K14-D1	044641	Early Bird: That's M	5G	18R
504	R1-K14-D2	044629	Early Bird: That's M	4R	12R
505	R1-K14-D2	044628	Early Bird: Season'	4R	12R
506	R1-K14-D3	044626	Early Bird: 3. My T	4R	12R
507	R1-K14-D3	044627	Early Bird: 4. At Sc	4R	12R

Figure 4.25. Screenshot of Soft File Data of Archived Plate

4.4.7. Data Management for *Olah Data Faktur*

The result of data processing of *Data Faktur* is completed *Laporan Order Selesai* data already filled in yellow column.

	A	B	C	D	AG	AH	AI	AJ	AK	AL	AM
1	LAPORAN ORDER SELESAI										
2	Periode 01-01-2017 s/d 30-4-2017										
3	KNS/FORM/COS/ADM/14/01/00										
4	No.	No. Buku	No. Order	Judul	Spesifikasi						
5					Warna Isi	Warna Cover	Halaman	Kertas Isi	Kertas Cover	Keterangan Jilid	Finishing
2819	2.814		914701	D: Sehabis Tangis Kecil E	1/1	4/0		HVS 70 gr. 30.5x45.7			
2820	2.815		916307	D: Research Methods in H	4/4	4/0		HVS 70 gr. 30.5x45.7			
2821	2.816		916446	TPE Tahbisan Uskup Agu	1/1	4/0		HVS 80 gr.65x90			
2822	2.817		916606	D:Mengenal Soft Skill	1/1	4/0		Book Paper 72gr 65x100			
2823	2.818		916745	7 Pilar Imam	1/1	4/0		Dr pmsn hvs 60 gr 79 x 109			
2824	2.819		917182	D: Dummy Panduan dan I	1/1	4/0		HVS 70 gr. 30.5x45.7			
2825	2.820		978987	Doaku	1/1	0/0		HVS 70 gr.65x90			
2826	2.821		987800	Belajar+Mengapresiasi M	1/1	4/0		Book Paper 57,5 gr. 65x100			
2827	2.822		991867	Character Building SD Ke	4/4	4/0		Book Paper 57,5 gr. 65x100			
2828	2.823		992389	Character Building SD Ke	4/4	4/0		Book Paper 57,5 gr. 65x100			
2829	2.824		992400	Character Building SD Ke	4/4	4/0		Book Paper 57,5 gr. 65x100			

Figure 4.26. Screenshot of the Result of *Olah Data Faktur*

4.4.8. Data Management for *Olah Data Tunggu*

Processed data generates a recapitulation of how many times and how long (minutes) of waiting time and disruptions arise in the production process recorded in the given data file. There are 5 types of waiting time, which is '*Tunggu Kering', 'Tunggu Kertas', 'Tunggu Keterangan', 'Tunggu Order',* and *'Tunggu Plat'*. For interference, there are two types of disturbances recorded, namely *'Gangguan Listrik'* and *'Gangguan Mesin'*. The recapitulation of this data is made for September to December 2017. The waiting times and disruptions are recorded for each machine in the Offset Print Unit.

Recapitulation of the number of waiting times and disturbances is then reported to the Manager of *Divisi Percetakan* as an evaluation of the performance of each machine. The evaluated machines are Miller Machine, Rolland Machine 2, Old Rolland 4 Machine, and New Rolland 4 Machine. Recapitulation results are:

a. September

REKAPITULASI JUMLAH WAKTU GANGGUAN & TUNGGU
BULAN SEPTEMBER 2017

MESIN / JENIS	TOTAL WAKTU (MENIT)			
	MILLER	ROLLAND 2	ROLLAND 4 LAMA	ROLLAND 4 BARU
Gangguan Listrik	0	0	0	0
Gangguan Mesin	125	1425	1220	150
Tunggu Kering	0	0	0	240
Tunggu Kertas	272	80	0	480
Tunggu Keterangan	50	0	0	250
Tunggu Order	3527	2520	0	0
Tunggu Plat	0	0	0	35
TOTAL WAKTU	3974	4025	1220	1155

Figure 4.27. Screenshot of the Result of *Olahan Tunggu* (Sept)

b. Oktober

REKAPITULASI JUMLAH WAKTU GANGGUAN & TUNGGU
BULAN OKTOBER 2017

MESIN / JENIS	TOTAL WAKTU (MENIT)			
	MILLER	ROLLAND 2	ROLLAND 4 LAMA	ROLLAND 4 BARU
Gangguan Listrik	0	0	0	0
Gangguan Mesin	875	1425	2230	3615
Tunggu Kering	0	0	70	290
Tunggu Kertas	182	255	0	275
Tunggu Keterangan	10	0	160	1615
Tunggu Order	30	0	0	90
Tunggu Plat	90	20	75	100
TOTAL WAKTU	1187	1700	2535	5985

Figure 4.28. Screenshot of the Result of *Olahan Tunggu* (Oct)

c. November

REKAPITULASI JUMLAH WAKTU GANGGUAN & TUNGGU
BULAN NOVEMBER 2017

MESIN / JENIS	TOTAL WAKTU (MENIT)			
	MILLER	ROLLAND 2	ROLLAND 4 LAMA	ROLLAND 4 BARU
Gangguan Listrik	255	195	75	180
Gangguan Mesin	1984	1925	1065	1105
Tunggu Kering	0	0	60	400
Tunggu Kertas	563	90	40	300
Tunggu Keterangan	45	0	65	1630
Tunggu Order	0	405	0	0
Tunggu Plat	30	0	0	135
TOTAL WAKTU	2877	2615	1305	3750

Figure 4.29. Screenshot of the Result of *Olahan Tunggu* (Nov)

d. Desember

REKAPITULASI JUMLAH WAKTU GANGGUAN & TUNGGU
BULAN DESEMBER 2017

MESIN / JENIS	TOTAL WAKTU (MENIT)			
	MILLER	ROLLAND 2	ROLLAND 4 LAMA	ROLLAND 4 BARU
Gangguan Listrik	60	0	135	75
Gangguan Mesin	1198	70	595	275
Tunggu Kering	0	0	420	360
Tunggu Kertas	607	45	30	560
Tunggu Keterangan	20	0	15	1055
Tunggu Order	625	740	0	0
Tunggu Plat	167	0	135	115
TOTAL WAKTU	2677	855	1330	2440

Figure 4.30. Screenshot of the Result of *Olahan Tunggu* (Dec)

4.5. Projects from Faculty Supervisor

The following explainations are the tasks given by the Faculty Supervisor during the industrial practice period.

4.5.1. Fishbone Diagram

Fishbone Diagram or Diagram of Cause or Ishikawa Diagram is a methodology for analyzing the causes of a problem with the purpose of identifying the root of the problem. This diagram is shaped like a fishbone, that's why this diagram is better known as Fishbone Diagram.

The first task of Faculty Supervisor is to observe the problems that have the most potential to interfere with business processes in PT. Kanisius mainly deals with the department or department where the student is placed in the period of industrial practice. Students are placed in the Sub-department of *JSA-Ekspedisi*, PPIC Department, *Divisi Percetakan*. From the observation at the beginning of the period of industrial practice, students find a problem that could potentially adversely affect the overall business process at PT. Kanisius. The results of the analysis with the fishbone diagram are in Appendix 4.

4.5.2. FMEA (Failure Modes and Effects Analysis)

FMEA (Failure Modes and Effects Analysis) is a methodology that has almost the same function as a fishbone diagram, which is to analyze the causes of a problem and identify the causes. However, in the methodology of problem analysis with FMEA, there are several factors assessed in the figures to identify which factors are most influential in each of the analyzed issues. These factors are Severity of Potential Failure Effects, Occurance of Potential Causes, and Detection for the Current Control. These three factors are scored in numbers with the following rules:

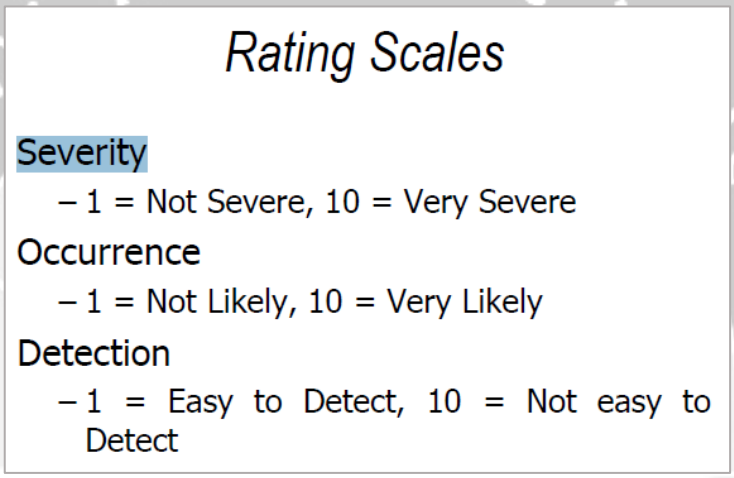


Figure 4.31. FMEA Rating Scales

Then from the multiplication of the value of Severity, Occurance, and Detection generated RPN (Risk Priority Number) which shows the number of priority risk. The problem with the highest RPN value is made a top priority to find the solution of the problem.

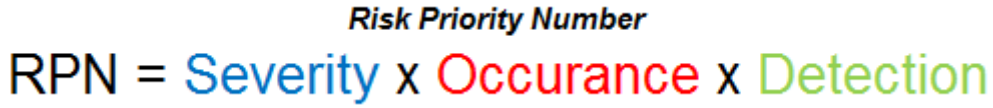


Figure 4.32. RPN (Risk Priority Number) Formula

The FMEA analysis is performed for several processes by identifying the input or input of the process. For each input, it describes any process that has the potential to fail. Then dicara results, causes, and controls that have been done against the potential failure. The result is shown in Figure 4.31. the following.

No	Process Step Input	Potential Failure Mode	Potential Failure Effects	Severity (1-10)	Potential Causes	Occurance (1-10)	Current Controls	Detection (1-10)	RPN (Risk Priority Number)	Actions Recommended	Action Taken
1	Scheduling	Metode hitung waktu scheduling masih dilakukan dengan hitung manual.	Waktu scheduling lama	8	Scheduler tidak memiliki kemampuan hitung cepat dan tidak memanfaatkan teknologi komputer.	9	Belum ada solusi untuk mengatasi kesulitan scheduler dalam penghitungan.	5	360	Memanfaatkan teknologi komputer dan *software* tertentu untuk mempercepat scheduling.	Mahasiswa membuat program hitung dengan Ms. Excel dan diimplementasikan di proses scheduling.
			Mesin tidak bisa mulai bekerja karena jadwal belum ada	7	Jadwal tidak segera didapatkan sehingga tidak bisa memulai pekerjaan.	8	Operator mesin mendatangi scheduler untuk meminta percepatan pembuatan jadwal.	4	224		
2	Order Mendadak	Order mendadak dari klien prioritas sehingga harus melakukan re-scheduling (hitung ulang).	Menambah waktu untuk re-scheduling	5	Order klien prioritas tidak bisa ditunda, karena nilainya tinggi, sehingga mengacaukan jadwal yang sudah ada.	6	Beberapa order prioritas yang dadakan dapat diprediksi kehadirannya.	8	240	Mendata kapan saja ordek mendadak dari klien prioritas mungkin datang sehingga dapat mempersiapkan re-scheduling dengan cepat.	Memprediksi waktu-waktu tertentu ketika order mendadak dari klien prioritas mungkin datang.
			Mesin harus menyesuaikan jadwal yang dibuat ulang	4	Jadwal yang mendadak menggeser jadwal lain, sehingga harus setup ulang mesin.	6	Operator mesin mulai terbiasa untuk menerima order mendadak yang datangnya bisa diperkirakan.	5	120		
3	Operator Mesin	Adanya operator yang tidak masuk kerja.	Pekerjaan tidak bisa dieksekusi sesuai jadwal	3	Operator tidak masuk dan tidak ada pengganti.	6	Ada operator yang menjalankan dua mesin, atau meminta bantuan operator mesin yang menganggur.	7	126	Memberlakukan aturan ijin kerja dengan lebih ketat dan teratur.	Sanksi untuk pekerja yang ijin tidak masuk kerja secara mendadak.
4	Persiapan Mesin	Waktu tambahan di luar penjadwalan akibat persiapan mesin yang lama.	Waktu yg sudah dijadwalkan selesai lebih lama	3	Jika order berbeda, ada beberapa pengaturan mesin yang harus diubah yang terkadang diselesaikan dalam waktu lama.	5	Menyetel pengaturan mesin dengan lebih cepat.	5	75	Melatih operator untuk setup mesin dengan cepat.	Melakukan evaluasi setiap selesai kerja untuk perbaikan.
5	Teknologi Mesin	Teknologi mesin tidak mampu memenuhi kebutuhan cetak, karena umur mesin sudah tua dan performansinya memburuk.	Mesin tertentu tidak bisa melakukan kerja secara optimal.	2	Mesin yang sudah tua semakin beresiko untuk *breakdown* jika diatur dalam mode optimal.	2	Sudah ada mesin baru dan akan dikaji untuk mengganti mesin-mesin lama secara bertahap.	2	8	Membeli mesin yang lebih modern dan baru.	Mengkaji pembelian mesin baru.
6	Sumber Energi Listrik	Tidak memiliki generator listrik, sehingga ketika ada pemadaman listrik PLN, pabrik tidak bisa melakukan proses produksi.	Semua mesin tidak bisa bekerja di waktu pemadaman listrik	5	Pemadaman listrik dari PLN tidak bisa diatasi, karena tidak adanya listrik cadangan seperti generator listrik.	2	Adanya tambahan waktu kerja di hari lain untuk menggantikan waktu kerja yang terbuang saat pemadaman listrik.	1	10	Mempertimbangkan pembelian generator listrik.	Mengkaji penggunaan generator.

Figure 4.33. Screenshot *of* FMEA Result

From the above analysis, students are then asked to explain each Potential Failure Mode of each input of the process. This explanation is intended to give a more detailed picture and deeper analysis for each Potential Failure Mode found. The explanation is as follows:

a. Scheduling

The process of scheduling is one of the stages work done by the scheduling team. In this process, scheduler performs scheduling for production machines so that incoming orders can be fulfilled according to client request. Scheduler will calculate the start and finish time of each machine and arrange the order of production and order fulfillment according to priority. This priority is based on the date the order is requested by the client. The scheduler also calculates how much material is needed to complete an order, such as the number of papers, what kind of paper, how many circles (number of turns), and so on.

The observations found that all the timing and counting of production materials in the scheduling process was done by means of calculating a trade calculator and manual count.

This count method causes two consequences, namely the old counting process and the machine can not start production. Order that has been entered can not be processed immediately by the production machines, because the machine operators are too long to do the calculation and the operator can only run the machine if the schedule has been completed. Therefore, machines often do not work, because there is no production schedule yet.

Scheduler still uses this method, because of the absence of the ability to count using a computer. So far no one can make a faster calculation system by utilizing the already developed technology.

From these observations, students recommend the use of computer technology with Microsoft Excel software to create simple calculation programs that can help calculate the production time and calculation of production raw materials. Potential Failure Mode in this scheduling process has the highest RPN value and is a priority improvement.

b. *Order Mendadak* (Sudden Order)

Steps of finishing every order that received by PT. Kanisius will be scheduled by the scheduler and sorted in order of priority of target completion order, but in certain cases, there is an order that comes suddenly and is a priority client request (clients with high value orders or clients who have subscribed). The number of circuits (prints) for each order suddenly also varies. One example of a sudden order is the newspaper "*Laspela" (Laskar Pelangi)* from Bangka Belitung. This order came suddenly, because the newspaper content was also just finished in the day and immediately sent to Kanisius for immediate printing so that news in it can be informed on time.

This sort of order will result in additional scheduler work time for rescheduling and since the timing is still using the manual way as described in the first problem, the overall working time becomes longer. This also affects the work of the production machine, because when reschedule results are given, the operator must make re-adjustment especially if the paper type and order specification are different from the last order done.

To handle this kind of order, JSA team and production team need to do the adjustments as much as possible. So far, there are several sudden orders that can be predicted many circulation, the length of time completion, and so forth. This can be of little help in the face of sudden orders coming. Machine operators are also more accustomed to adjusting machine rules when orders suddenly arrive.

From this problem, the student recommends to collect data whenever the sudden order arrives so that the predicted arrival of sudden orders can be estimated.

c. *Operator Mesin* (Machine Operators)

The third problem found is the availability of daily operator power. When students do observations on the floor of production, especially in the machine, found that there are operators who do not come to work and no replacement. This of course affects the operation of the machine. Each machine must still be operated and controlled by an operator. If any operator is not logged in, then the machine should not be used.

It was also found that the reason for the absence of a replacement for an absent operator was that the operator was on leave or did not enter in suddenly, not giving any informations.

From this problem, students recommend the application of permits and / or leave with more clearly and the existence of clear sanctions also if such an event occurs, so that all workers are more disciplined in doing their work.

d. *Persiapan Mesin* (Setup Machine)

Before a machine is used, the operator first sets the machine settings to suit the order to be done, in this case is the paper type setting, paper size, the number of colors, and so on.

Some operators have difficulty adjusting machine settings according to existing orders, and this adds to the machine preparation time which will affect the overall processing time of one order.

Therefore, students recommend to provide training to the operator in order to make the preparation of the machine more quickly.

e. *Teknologi Mesin* (Machine Technology)

At PT. Kanisius has 5 main machines for offset printing, and 1 machine for plate printing. All these machines are important elements in the whole production process, so that if there is damage to the machine, then the whole business process will be disrupted.

These machines have been used for a long time, 5-10 years. Some machines begin to show performance degradation, such as can not be used at a certain speed, or can not perform certain functions.

This affects the work on the production floor. Therefore, PT. Kanisius is reviewing for the purchase of a new machine.

f. *Sumber Energi Listrik* (Electricity)

Energy sources used by PT. Kanisius to run all the production machines is PLN (*Perusahaan Listrik Negara) electricity*. Sometimes, PLN does a power outage and this causes the cessation of all machine work in PT. Kanisius. PT. Kanisius also does not have an electric generator as a backup energy source.

At the time of PLN's power outage, PT. Kanisius was forced to postpone all schedules that day, and be allocated to another day. This results in additional time to adjust the turnover of lost working hours due to power outages.

Therefore, it is also being considered to use an electric generator as a backup power source.

CHAPTER 5
CONCLUSION AND SUGGESTION

This Chapter 5 contains the conclusions of the processes done by students during the period of industrial practice and suggestions from students to the company about the potential improvements of the problems discovered during the period of industrial practice.

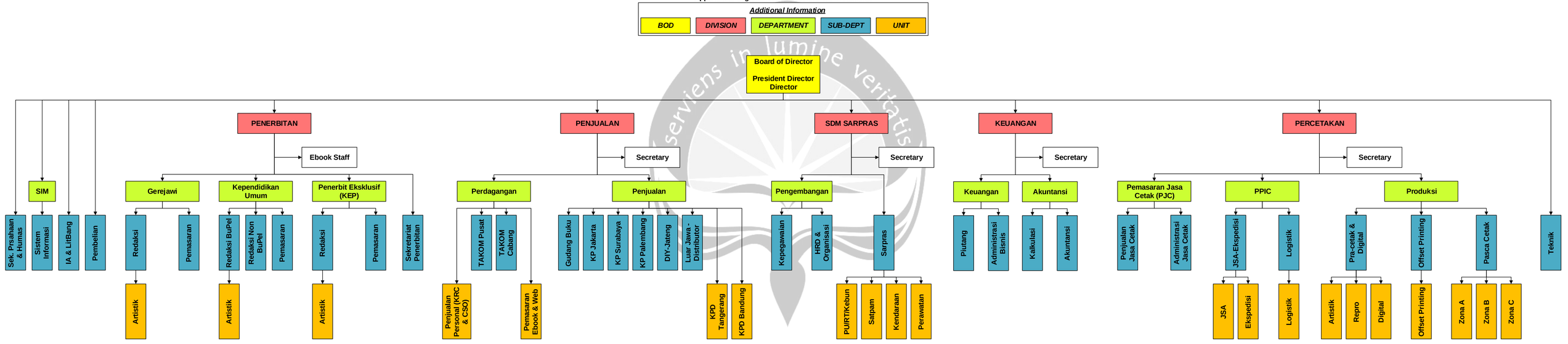
5.1. Conclusion

a. Students can understand the company scope and business processes that exist in the company well.
b. Students adapt to the work environment and learn to place themselves properly.
c. Students participate in the process and are involved in the real activities of everyday companies, especially in the Department of PPIC, *Divisi Percetakan*.
d. Students are able to complete all tasks provided by the On-site Supervisor and Faculty Supervisor.
e. The existing system in the company has been well integrated, there is a clear organizational structure so that the coordination line between employees is clear so as to facilitate students in coordinating as students of industrial practice.
f. In terms of technology use, the company is still unable to utilize the current emerging technologies to support the overall business process.
g. Qualifications of workers in this company are still not able to follow the development of existing technology so as not to optimize the utilization of these technologies.
h. Students are able to contribute in the use of technology by applying the knowledge and capabilities gained during the study period at the Universitas Atma Jaya Yogyakarta.
i. Work culture in the company is very supportive of existing business processes, because company values, namely honest, disciplined, swift, competent, and learner, applied very well.

5.2. Suggestion

a. Training for employees is very important to do, especially because in this modern era, we have no other choice but to cacth up with the development of technology.
b. Employee qualifications must be upgraded to keep up with the printing and publishing business in Indonesia as seen from the number of similar businesses with good quality continues to grow.

Appendix 1. Organizational Structure of PT. Kanisius



Appendix 2. Business Process of PT. Kanisius

BUSINESS PROCESS MAPPING: ORDER COMPLETION PROCESS IN PT. KANISIUS

PHASES

CUSTOMER

START
Order
Agree?
NO
YES
Receive the finished product
Receive the Delivered Product
END

MARKETING

Receive the Order
Send the Order File
Create Order Document
Print Order Document
Send the *Kantung Order*
A

FILE CHECK (ARTISTIC)

Receive the Order File
Checking the Order File
Process?
NO
YES
Order File Processing
Upload the Ordered File to the server
Plotting & Printing for Proofing

ANALYZER

A
Receive Job Ticket
Order Planning Process
Make the plate?
NO
YES
Create Planning Document for the Order
Print Planning Document for the Order
Send the *Kantung Order*
Request the Plate to Warehouse
B

HEAD OF SUB-DEPT (JSA-EKSPEDISI)

Receive *Kantung Order*
NO
Production Planning Confirmation
Hand over the *Kantung Order* to Job Coordinator
D
Process?
NO
YES
C

PLATE WAREHOUSE (LOGISTIC)

B
Receive Plate Request
Deliver the Requested Plate
NO

DEPT. LOGISTIC

B
Receive Plate Request
Available?
YES
Provice the Requested Plate
Deliver the Plate, Raw Material, and Job Ticket
E
G
Receive the *Kantung Order* & Plate

SCHEDULER OFFSET (UNIT JSA)

C
Manage the Data from PPIC JSA Analyzer
Scheduling for Plate Making
Scheduling for Production (Printing)
Print the Schedule for CTP & Printing Unit
Hand over the Schedule for CTP & Printing Unit
I
M
Scheduling for *Kurang Cetak*
Print the Schedule for *Kurang Cetak*
Hand over the Schedule to Printing Unit
I

JOB COORDINATOR

D
Receive the *Kantung Order*
Record the *Job Ticket*
Deliver *Kantung Order* to CTP/ Logistic
F

PRE-PRINT UNIT (CTP)

I
Receive the Schedule
F
Receive the *Kantung Order*
Imposition
Make the Plate
Deliver Job Ticket and the Plate
G

PRINTING UNIT

I
Receive the Schedul for Each Machine
E
Receive the *Kantung Order*
Do the Production (Printing) Based on Job Ticket And Schedule
Deliver the Katern to Finishing Unit
J

POST-PRINT SCHEDULER

J
Scheduling for Finishing Process
Print the Finishing Schedule
Deliver the Schedule to Finishing Unit
K

PRODUCTION (FINISHING)

K
Receive the Finishing Schedule
Doing the Finishing Process for Each Order
Doing the Quality Control
Prepare the finished product & job ticket to be taken by Expedition team
L

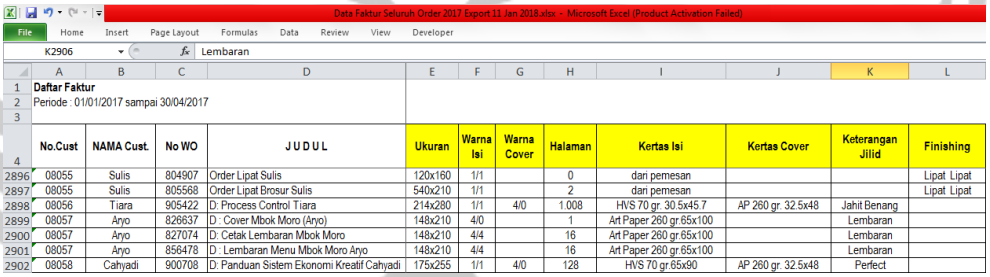
EXPEDITION UNIT

L
Receive Job Ticket and the Finished Product
Check the Quantity of Finished Product
Right Quantity?
NO
YES
Create the Invoice
Packaging Process
Delivery
M

MENGGUNAKAN FUNGSI
VLOOKUP (MS. EXCEL)
UNTUK MELAKUKAN REKAPITULASI FAKTUR

Langkah 1: Persiapan Data

- Persiapkan file **Data Faktur Seluruh Order 2017 Export 11 Jan 2018.xlsx (FILE RUJUKAN)** & **Order Selesai januari sd November 2017.xlsx (FILE OLAHAN)** dan pastikan semua data tersusun rapi agar memudahkan proses pemindahan data.
- Proses pemindahan data ini bertujuan untuk mecocokkan data 'Ukuran', 'Warna Isi', 'Warna Cover', 'Halaman', 'Kertas Isi', 'Kertas Cover', 'Keterangan Jilid', dan 'Finishing' dari **FILE RUJUKAN** dengan **FILE OLAHAN** sehingga pada kedua file, data-data tersebut akan sama untuk setiap order.
- Pada dasarnya, fungsi *lookup* akan melakukan pencocokan data-data di atas dengan melihat karakteristik unik suatu kumpulan data yang pada kasus ini adalah data **No. WO** dari setiap order. Dengan **No. WO** ini, fungsi *lookup* akan mencari kumpulan data untuk setiap **No. WO** di **FILE RUJUKAN** dan dicocokkan dengan **No. WO** di **FILE OLAHAN**.
- Kolom-kolom yang akan dicocokan lebih baik diatur dengan urutan yang sama dari kiri ke kanan, sehingga mempermudah proses olah data.

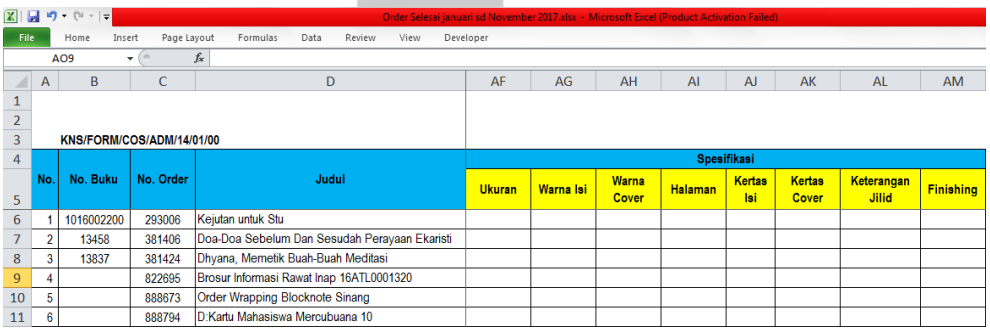


Data Faktur Seluruh Order 2017 Export 11 Jan 2018.xlsx - Microsoft Excel (Product Activation Failed)

Daftar Faktur
Periode : 01/01/2017 sampai 30/04/2017

	No.Cust	NAMA Cust.	No WO	JUDUL	Ukuran	Warna Isi	Warna Cover	Halaman	Kertas Isi	Kertas Cover	Keterangan Jilid	Finishing
2896	08055	Sulis	804907	Order Lipat Sulis	120x160	1/1		0	dari pemesan			Lipat Lipat
2897	08055	Sulis	805568	Order Lipat Brosur Sulis	540x210	1/1		2	dari pemesan			Lipat Lipat
2898	08056	Tiara	905422	D: Process Control Tiara	214x280	1/1	4/0	1.008	HVS 70 gr. 30.5x45.7	AP 260 gr. 32.5x48	Jahit Benang	
2899	08057	Aryo	826637	D : Cover Mbok Moro (Aryo)	148x210	4/0		1	Art Paper 260 gr.65x100		Lembaran	
2900	08057	Aryo	827074	D: Cetak Lembaran Mbok Moro	148x210	4/4		16	Art Paper 260 gr.65x100		Lembaran	
2901	08057	Aryo	856478	D : Lembaran Menu Mbok Moro Aryo	148x210	4/4		16	Art Paper 260 gr.65x100		Lembaran	
2902	08058	Cahyadi	900708	D: Panduan Sistem Ekonomi Kreatif Cahyadi	175x255	1/1	4/0	128	HVS 70 gr.65x90	AP 260 gr. 32.5x48	Perfect	

Gambar 1. Urutan kolom data pada FILE RUJUKAN



Order Selesai januari sd November 2017.xlsx - Microsoft Excel (Product Activation Failed)

KNS/FORM/COS/ADM/14/01/00

No.	No. Buku	No. Order	Judul	Spesifikasi							
				Ukuran	Warna Isi	Warna Cover	Halaman	Kertas Isi	Kertas Cover	Keterangan Jilid	Finishing
1	1016002200	293006	Kejutan untuk Stu								
2	13458	381406	Doa-Doa Sebelum Dan Sesudah Perayaan Ekaristi								
3	13837	381424	Dhyana, Memetik Buah-Buah Meditasi								
4		822695	Brosur Informasi Rawat Inap 16ATL0001320								
5		888673	Order Wrapping Blocknote Sinang								
6		888794	D:Kartu Mahasiswa Mercubuana 10								

Gambar 2. Urutan kolom data pada FILE OLAHAN

Langkah 2: Mengolah Data dengan VLOOKUP

- Terdapat 2 jenis fungsi *lookup*, yaitu *vertical lookup* (=VLOOKUP) dan *horizontal lookup* (=HLOOKUP). *Vertical lookup* berfungsi untuk mencocokan data secara vertikal, sehingga karakteristik data yang dijadikan patokan pencocokan data tersusun secara vertikal dalam tabel. Begitu juga dengan fungsi *horizontal lookup.* Dalam kasus ini, digunakan VLOOKUP.
- Rumus VLOOKUP diketik di cell data yang ingin diisikan dengan pencocokan yang dilakukan dengan merujuk ke **FILE RUJUKAN**. Gambar di bawah menunjukkan bahwa fungsi VLOOKUP akan melakukan pencocokan data 'Ukuran' untuk setiap No. WO.

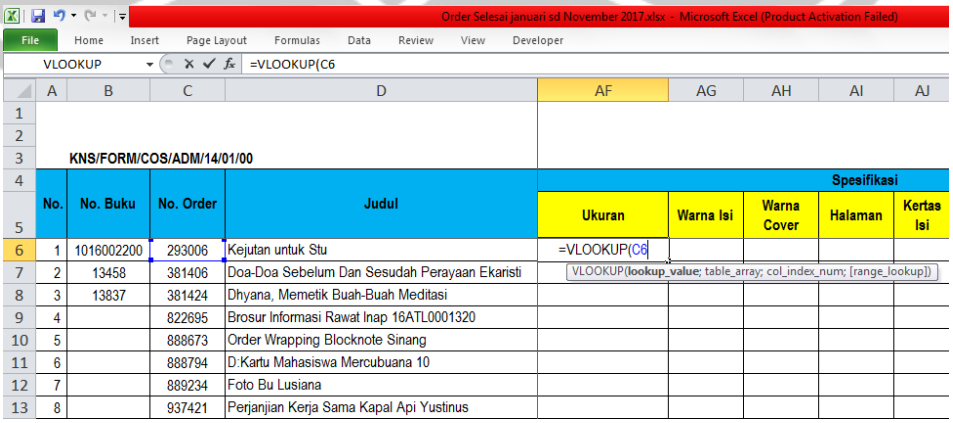
Gambar 3. Memasukkan rumus VLOOKUP

- Rumus VLOOKUP adalah:

=VLOOKUP(lookup_value; table_array; col_index_num; [range_lookup])

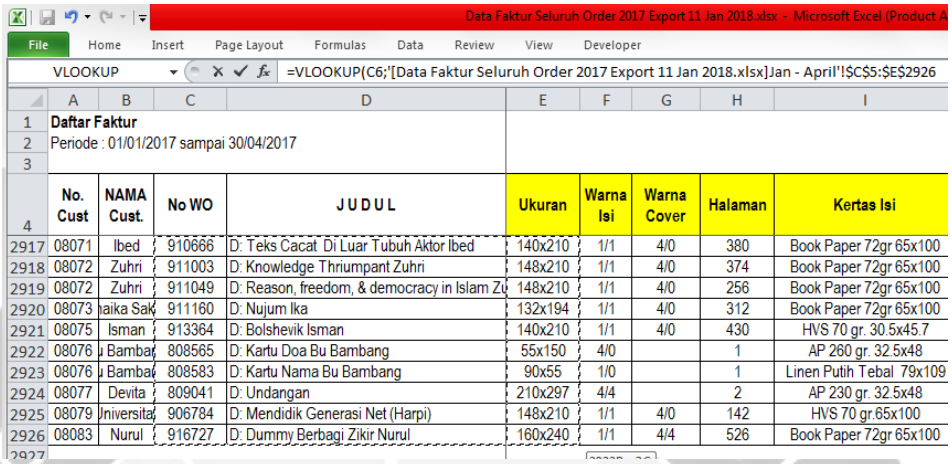
Keterangan:

- **lookup_value** adalah cell yang dijadikan patokan atau karakteristik unik setiap kelompok data, dalam hal ini No. WO (No. Order).



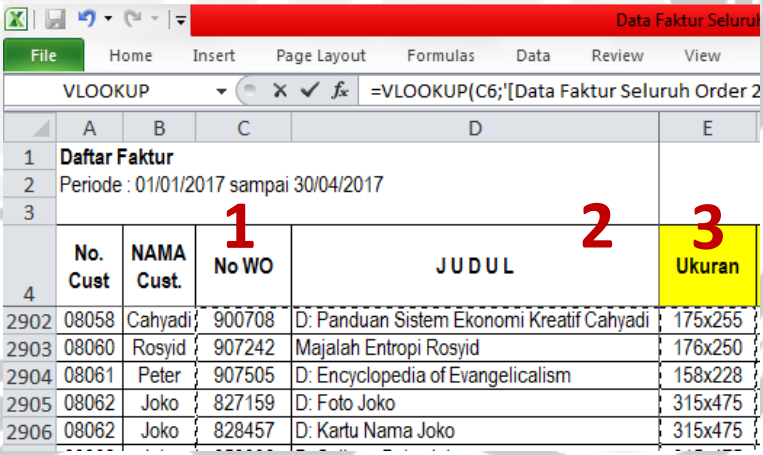
Gambar 4. Menentukan lookup_value

- **table_array** adalah kelompok data atau tabel yang dijadikan rujukan, dalam hal ini, digunakan data 'Ukuran' dari setiap No. WO di **FILE RUJUKAN**, sehingga **table_array** mencangkup kolom 'No. WO' sampai 'Ukuran'.

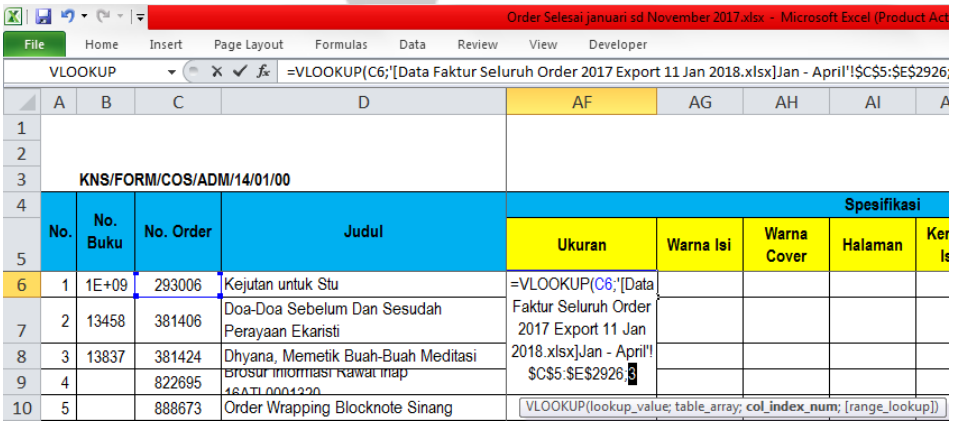


Gambar 5. Menentukan table_array

- **col_index_num** adalah jumlah kolom yang diambil untuk dijadikan **table_array**. Dalam kasus ini diambil 3 kolom data dari kolom 'No. WO' sampai 'Ukuran', sehingga *column index number*-nya adalah 3.



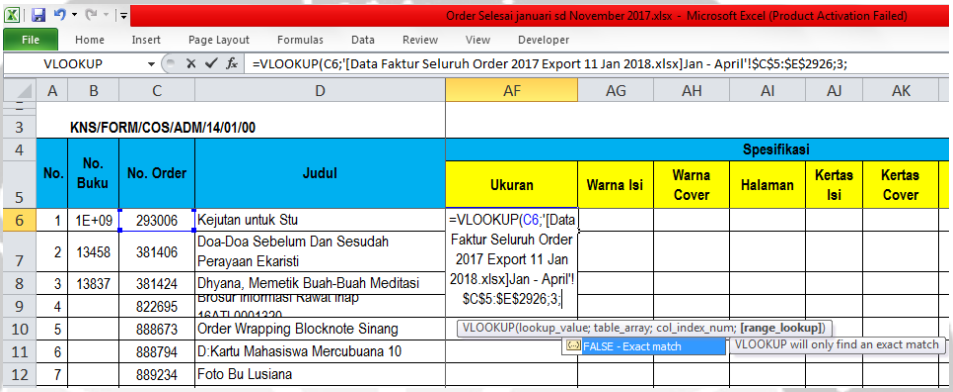
Gambar 6. Jumlah kolom table_array



Gambar 7. Menentukan col_index_num

- **[range_lookup]** adalah kondisi data yang dijadikan patokan pada **FILE RUJUKAN** (dalam hal ini No. WO) dimana terdapat dua pilihan kondisi, yaitu: TRUE adalah kondisi dimana No. WO diurutkan dari angka terkecil sampai terbesar atau A sampai Z (*ascending order*) sehingga jika ingin menggunakan kondisi ini, data No. WO harus diurutkan terlebih dahulu, sedangkan FALSE adalah kondisi dimana fungsi *lookup* akan mencocokan data antara satu No. WO dengan No. WO apabila kedua No. WO benar-benar identik.

  Pada proses rekap faktur ini, digunakan kondisi **FALSE**, sehingga data yang dicocokkan adalah benar-benar data dari 2 No. WO yang sama.



Gambar 8. Menentukan [range_lookup]

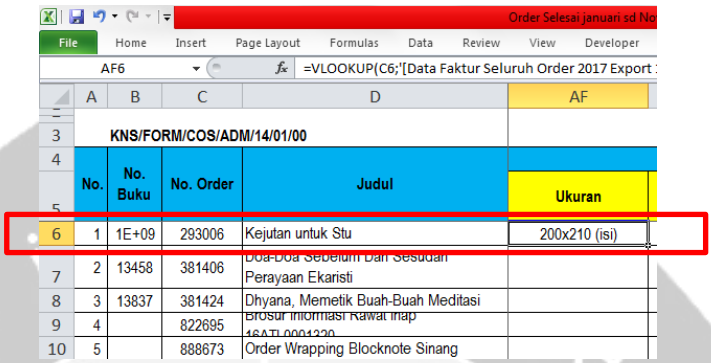
- Jika rumus sudah lengkap, tekan Enter, sehingga muncul hasil *lookup*-nya.

No. Order	Judul	Ukuran
293006	Kejutan untuk Stu	=VLOOKUP(C6;'[Data Faktur Seluruh Order 2017 Export 11 Jan 2018.xlsx]Jan - April'!$C$5:$E$2926;3; FALSE)
381406	Doa-Doa Sebelum Dan Sesudah Perayaan Ekaristi	
381424	Dhyana, Memetik Buah-Buah Meditasi	
822695	Brosur Informasi Rawat Inap 16ATL0001220	
888673	Order Wrapping Blocknote Sinang	

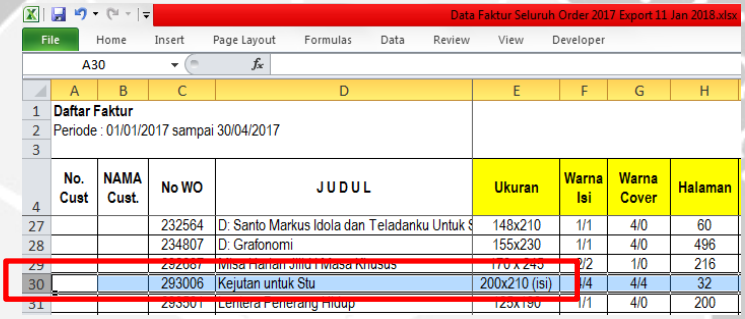
Gambar 9. Rumus VLOOKUP yang Digunakan

Gambar 10. Hasil VLOOKUP

- Untuk memastikan kebenaran fungsi *lookup* yang telah dilakukan, bisa dilakukan *cross-check* secara manual dengan mencari data 'Ukuran' untuk No. WO yang telah diisikan tadi. Buka **FILE RUJUKAN**, dan temukan (CTRL+F) No. WO yang tadi diisikan 'Ukuran'-nya dan cocokkan dengan hasil *lookup*-nya.



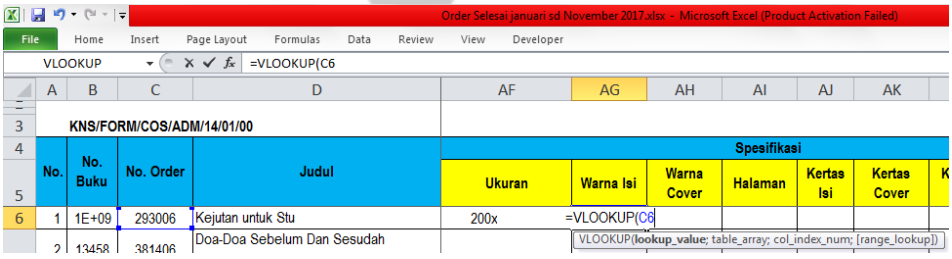
Gambar 11. Hasil *Lookup* di FILE OLAHAN



Gambar 12. Data di FILE RUJUKAN

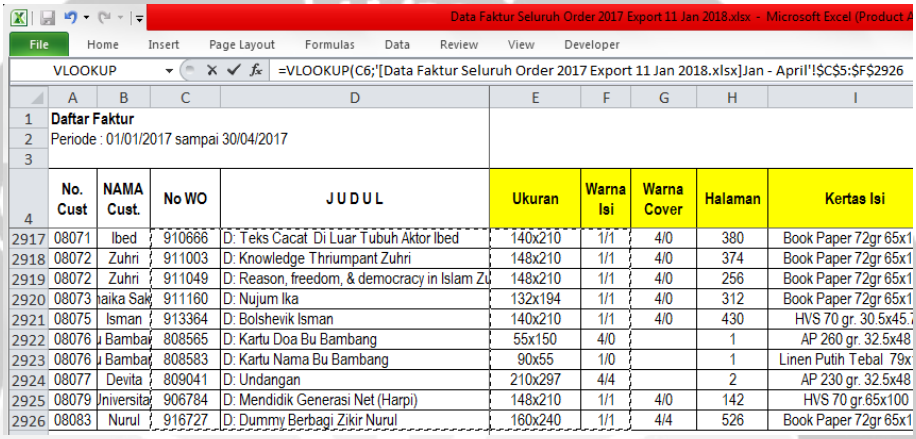
Langkah 3: Tips & Trick untuk Olah Data Selanjutnya

- Pada LANGKAH 1 sudah dianjurkan untuk menyusun kolom yang akan diisikan secara urut sesuai kolom-kolom di **FILE RUJUKAN**. Hal ini bertujuan untuk mempermudah proses pengisian data selanjutnya.
- Berikut ini adalah rumus *lookup* yang digunakan pada kolom 'Ukuran':
  =VLOOKUP(C6;'[Data Faktur Seluruh Order 2017 Export 11 Jan 2018.xlsx]Jan - April'!$C$5:$E$2926;3;FALSE)
- **lookup_value** yang digunakan di kolom selanjutnya, yaitu kolom 'Warna Isi' adalah sama dengan kolom 'Ukuran', karena tetap akan menjadikan No. WO sebagai patokan.



Gambar 13. Menentukan lookup_value untuk Kolom 'Warna Isi'

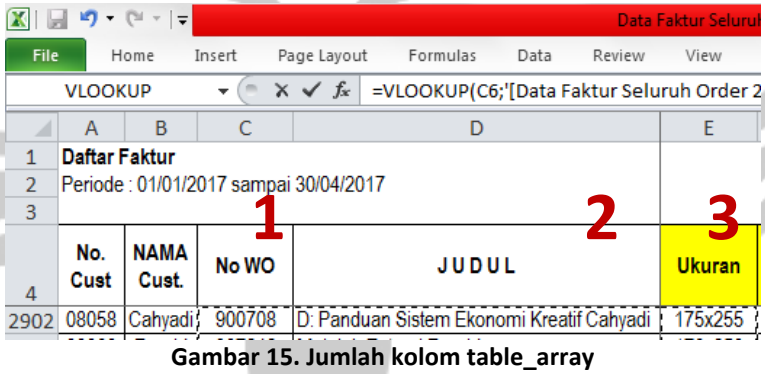
- **table_array** yang digunakan juga dimulai dari kolom No. WO, tapi ditambah dengan kolom 'Warna Isi', sehingga akan terjadi pergeseran kolom antara **table_array** di kolom 'Ukuran' yang adalah =VLOOKUP(C6;'[Data Faktur Seluruh Order 2017 Export 11 Jan 2018.xlsx]Jan - April'!$C$5:$E$2926;3;FALSE) menjadi =VLOOKUP(C6;'[Data Faktur Seluruh Order 2017 Export 11 Jan 2018.xlsx]Jan - April'!$C$5:$F$2926;3;FALSE). Maka, untuk kolom selanjutnya 'Warna Cover', 'Halaman', dan seterusnya, akan bergeser dari kolom E, ke F, ke G, dan seterusnya. =VLOOKUP(C6;'[Data Faktur Seluruh Order 2017 Export 11 Jan 2018.xlsx]Jan - April'!$C$5:$G$2926;3;FALSE) rumus untuk kolom 'Warna Cover', dan seterusnya.



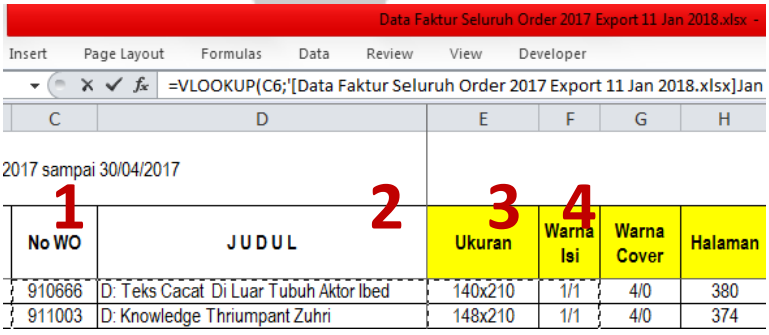
	No. Cust	NAMA Cust.	No WO	JUDUL	Ukuran	Warna Isi	Warna Cover	Halaman	Kertas Isi
2917	08071	Ibed	910666	D: Teks Cacat Di Luar Tubuh Aktor Ibed	140x210	1/1	4/0	380	Book Paper 72gr 65x1
2918	08072	Zuhri	911003	D: Knowledge Thriumpant Zuhri	148x210	1/1	4/0	374	Book Paper 72gr 65x1
2919	08072	Zuhri	911049	D: Reason, freedom, & democracy in Islam Zu	148x210	1/1	4/0	256	Book Paper 72gr 65x1
2920	08073	aika Sak	911160	D: Nujum Ika	132x194	1/1	4/0	312	Book Paper 72gr 65x1
2921	08075	Isman	913364	D: Bolshevik Isman	140x210	1/1	4/0	430	HVS 70 gr. 30.5x45.
2922	08076	Bambar	808565	D: Kartu Doa Bu Bambang	55x150	4/0		1	AP 260 gr. 32.5x48
2923	08076	Bambar	808583	D: Kartu Nama Bu Bambang	90x55	1/0		1	Linen Putih Tebal 79x
2924	08077	Devita	809041	D: Undangan	210x297	4/4		2	AP 230 gr. 32.5x48
2925	08079	Jniversita	906784	D: Mendidik Generasi Net (Harpi)	148x210	1/1	4/0	142	HVS 70 gr.65x100
2926	08083	Nurul	916727	D: Dummy Berbagi Zikir Nurul	160x240	1/1	4/4	526	Book Paper 72gr 65x1

Gambar 14. table_array untuk Kolom 'Warna Isi'

- Maka, untuk **col_index_num** kolom selanjutnya akan bertambah 1 angka. Di kolom 'Ukuran' adalah 3, sehingga untuk kolom 'Warna Isi' adalah 4, kolom 'Warna Cover' adalah 5, dan seterusnya. Selebihnya, rumus VLOOKUP-nya sama.

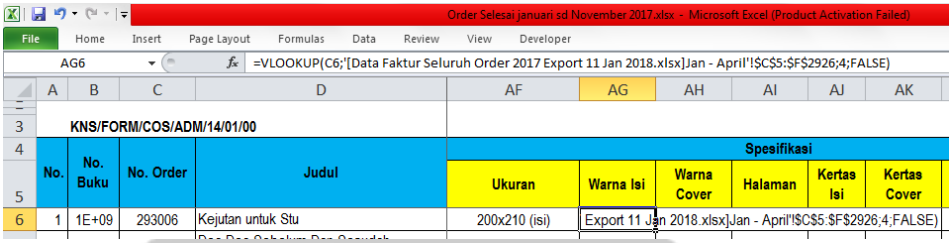


Gambar 15. Jumlah kolom table_array



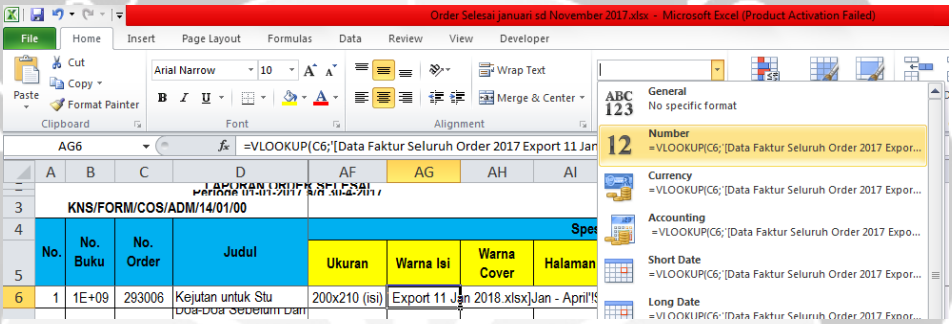
Gambar 16. Jumlah kolom table_array

- Pada kasus tertentu, ada kemungkinan terjadinya error di Ms. Excel dimana hasil *lookup*-nya tidak bisa muncul, tapi hanya memunculkan rumusnya saja, seperti ini:



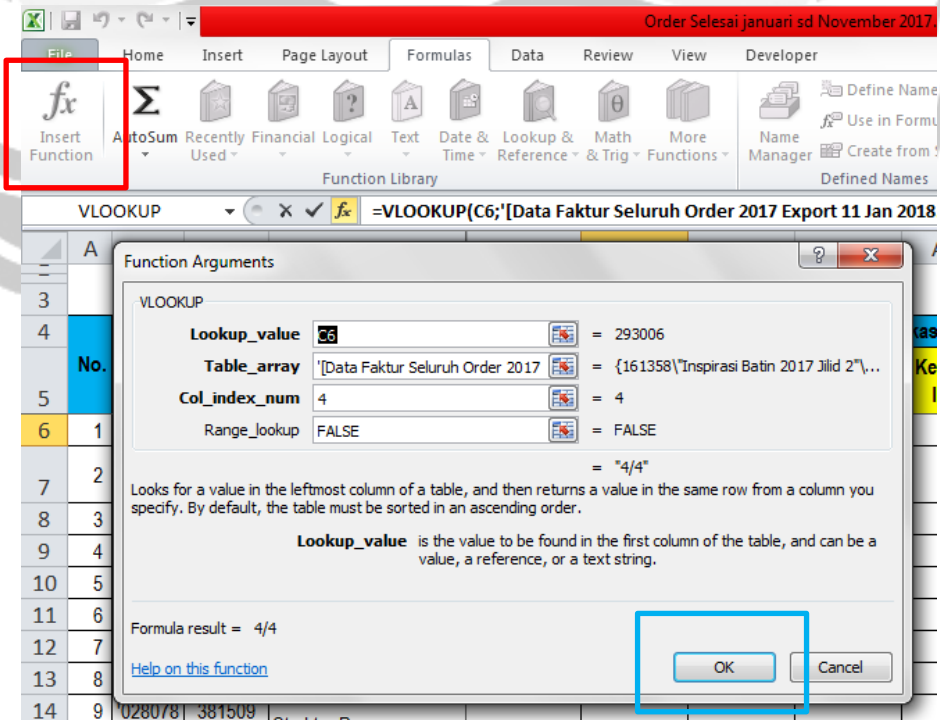
Gambar 17. Contoh Error

- Cara mengatasinya ada 2 langkah, yang pertama adalah pergi ke menu 'Home' dan cari kelompok tools 'Number' (disamping kelompok tools 'Alignment'), kemudian klik kotak pilihan seperti di bawah ini dan pilih 'Number'.



Gambar 18. Mengganti format cell

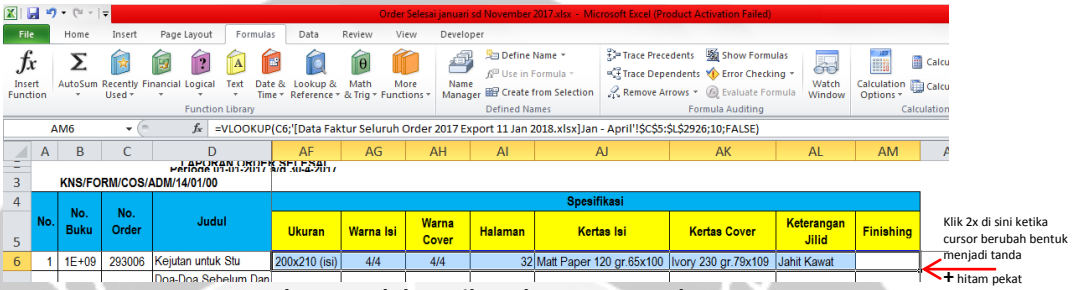
- Berikutnya, jika masih belum berhasil, pergi ke menu 'Formulas', klik tools paling kiri **'Insert Function'**, kemudian klik **OK** pada window yang terbuka.



Gambar 19. Insert Function

Langkah 4: Mengisi Semua Data tiap Kolom

- Setelah semua rumus *LOOKUP* di semua kolom lengkap, maka langkah berikutnya adalah menggunakan *Auto-fill* di Excel untuk menampilkan hasil tiap kolom untuk seluruh No. WO.
- Blok semua hasil *lookup*, kemudian klik 2 kali di pojok kanan bawah kotak blok ketika cursor berubah bentuk menjadi tanda plus hitam pekat.



Gambar 20. Blok Hasil *Lookup* Semua Kolom

No.	No. Buku	No. Order	Judul	Spesifikasi							
				Ukuran	Warna Isi	Warna Cover	Halaman	Kertas Isi	Kertas Cover	Keterangan Jilid	Finishing
1	1E+09	293006	Kejutan untuk Stu	200x210 (isi)	4/4	4/4	32	Matt Paper 120 gr.65x100	Ivory 230 gr.79x109	Jahit Kawat	
2	13458	381406	Doa-Doa Sebelum Dan Sesudah Perayaan Ekaristi	105x150	1/1	4/0	56	HVS 70 gr.65x100	Art Paper 260 gr.65x	Jahit Kawat	
3	13837	381424	Brosur Informasi Kawal	150x150	1/1	4/0	128	HVS 58 SI 79x109	Art Paper 260 gr.65x	Perfect	
4		822695	Brosur Informasi Kawal	396x215	4/4	0	2	HVS 80 gr.65x90	0	0	Potong jadi;Lipat Potong jadi;Lipat
5		888673	Order Wrapping	155x210	1/0	0	0	dari pemesan	0	0	
6		888794	D.Kartu Mahasiswa	86x54	4/4	0	2	PVC Putih 300mic. 31x40 c	0	0	LAM. GLOSSY 2 MUKA;Potong jadi LAM. GLOSSY 2
7		889234	Foto Bu Lusiana	100x150	4/0	0	1	AP 260 gr. 32.5x48	0	0	
8		937421	Perjanjian Kerja Sama	105x160	1/1	4/4	120	HVS 100 gr.79x109	Art Paper 260 gr.65x	Perfect	
9	'028078	381509	D. Brosur Ayo Sinau	155x225	1/1	4/0	276	HVS 70 gr.65x100	Ivory 230 gr.79x109	Perfect	
10		484648	B.Brosur Ngun-Un	148x210	4/0	0	1	Art Paper 100 gr. 65x90	0	0	Potong jadi Potong jadi
11		484666	B.Poster PSB SD	148x210	4/0	0	1	Art Paper 100 gr. 65x90	0	0	Potong jadi Potong jadi
12		821137	D.Poster 6 Gambar	470x310	4/0	0	1	Art Paper 260 gr.65x100	0	Lembaran	
13		821294	D.Poster PSB SD	297x420	4/0	0	1	Art Paper 150 gr.65x100	0	0	Potong jadi Potong jadi
14		830612	D. Cetak Sticker	315x470	4/0	0	0	Stiker Chromo 325x480	0	0	
15		830818	Laskar Pelangi Jyo	350x510	4/4	0	12	HVS 70 gr.79x109	0	0	Potong jadi;Lipat;Instop Potong jadi;Lipat;Instop
16		830854	Foto Subik	148x210	4/0	0	1	AP 260 gr. 32.5x48	0	0	LAM. GLOSSY 1 MUKA;Potong jadi LAM. GLOSSY 1

Gambar 20. Hasil Auto-fill

Appendix 4. Result of Problem Analysis Using Fishbone Diagram