UTM
UNIVERSITI TEKNOLOGI MALAYSIA

BUNGE
Loders Croklaan

SETB 3915

INDUSTRIAL TRAINING REPORT

FACULTY OF CHEMICAL & ENERGY ENGINEERING

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INDUSTRIAL TRAINING PERIOD	17 JULY- 6 OCTOBER (12 WEEKS)

CHAPTER 1

INTRODUCTION

1.1 Preface

At Universiti Teknologi Malaysia (UTM), the focus of the programme is industrial training. Students must complete their industrial training successfully in order to be eligible for the degree. The students will be placed at chosen organisations for a set amount of time as part of their industrial training so they may experience the realities of the workplace. Additionally, it will help the students get ready for their future professional activities.

1.2 Definition

Industrial training is the placement of a student for at least TWELVE (12) weeks at an outside organisation to gain practical experience and apply their theoretical knowledge in a professional setting. Additionally, it aims to expose students to all facets of professional life, including interpersonal relationships, cultural practises, and workplace behaviours.

1.3 Goal

Industrial training aims to elevate the students' knowledge and skills in a specific profession of their respective fields while producing credible, creative, and proficient graduates.

1.4 Objectives

The objectives of the Industrial training are as follows:

1. Enable the students to adapt to the dynamic working atmosphere
2. Apply academic knowledge in managing workplace challenges.
3. Acquire working experience and develop intellectual knowledge.
4. Build effective interaction and communication capabilities at all levels.
5. Promote teamwork spirit.
6. Practice good ethical values and work conducts.
7. Establish the University-Industry collaboration.
8. Educate the students in producing a technical report.

1.5 Learning Outcomes

Upon successful completion of the Industrial training, the students shall be able to:

1. Apply the knowledge acquired at the organisation.
2. Recognize the industry organisational structure and the roles and responsibilities within the organisation.
3. Interact and communicate effectively at all levels.
4. Present critical and innovative opinions with confidence, as well as be capable of resolving problems professionally
5. Demonstrate excellent ethics and integrity in their work conducts.
6. Work as a team player efficiently.
7. Deliver a comprehensive technical report.

CHAPTER 2

BACKGROUND OF INDUSTRY/ORGANISATION

2.1 Company Background

Figure 2.1 Bunge Loders Croklaan

The production and distribution of sustainable speciality oils and fats are led by Bunge Loders Croklaan, a Bunge Limited subsidiary that principally serves the food industry. The company has a history that dates back to the late 19th century, when it first started out as a merchant in grains and oilseeds. Since then, it has slowly grown into a famous player in the speciality oils and fats sector.

With its headquarters in the Netherlands, Bunge Loders Croklaan conducts business internationally and keeps a wide network of industrial sites, R&D facilities, and offices in various nations. Delivering sustainable, high-quality solutions that meet the changing needs of the food sector is central to its goal, along with upholding ethical sourcing procedures and a commitment to minimising its environmental impact.

Bunge Loders Croklaan, renowned for its cutting-edge methodology and the development of customised solutions, maintains its position at the forefront of food technology, contributing to the formation of industry standards and encouraging sustainable practises.

2.2 Purpose of the company

Being a leading supplier of sustainable and cutting-edge speciality oil and fat solutions for the food industry is Bunge Loders Croklaan's main goal. Delivering high-quality goods that meet the specific needs of food makers and improve the flavour, texture, shelf life, and nutritional profiles of food products is central to the organization's objective.

The business is strongly devoted to sustainability and ethical sourcing, seeking to reduce its environmental effect while coordinating its principles with the growing demand for morally and environmentally responsible products on a worldwide scale. The commitment of Bunge Loders Croklaan to research and development encourages innovation, ensuring that its products stay current with changing consumer preferences and market trends while encouraging sustainability and environmentally friendly production methods.

The company aspires to offer customised solutions to a varied customer base and furthers the growth of industry standards, notably in areas connected to sustainability, responsible sourcing, and product quality. The company has a global presence encompassing several nations.

2.3 Vision of the company

The goal of Bunge Loders Croklaan is to lead the way globally in reshaping the speciality oils and fats sector via commitment to sustainability, innovation, and excellence. In order to fulfil the constantly changing needs of the food business, the company strives to be a leader in the field by developing dependable, trustworthy solutions that help food producers produce goods that consumers love.

Bunge Loders Croklaan hopes that the use of its products and business methods will result in a food supply chain that is more ecologically friendly and sustainable. They strive to lessen their impact on the environment and encourage eco-friendly choices by putting a strong emphasis on responsible sourcing.

Due to their extensive global presence and ongoing innovation, they are recognised as an industry leader, setting standards for speciality oils and fats that take into account both consumer needs and the need for a more ethical and sustainable food business.

2.4 Company Values

Within the speciality oils and fats sector, Bunge Loders Croklaan upholds a set of core principles that serve as the foundation for its business practises and direct its goal. They have a strong emphasis on sustainability, which is seen in their ethical sourcing decisions and practises that lessen their impact on the environment.

The business prioritises innovation, working tirelessly to improve and create cutting-edge goods and solutions to satisfy the changing needs of the food industry. Their speciality oils and fats continuously satisfy the highest standards of excellence and safety since quality is a basic value. Bunge Loders Croklaan values its clients' needs and works to ensure their happiness through a customer-centric approach.

Additional essential concepts that guarantee moral, open, and transparent business practises from a global perspective include integrity, accountability, and global responsibility. The business actively participates in the areas where it operates and promotes inclusivity and teamwork among its employees. Community involvement is a distinguishing characteristic of their principles, reflecting a dedication to holistic responsibility, and safety is their first priority.

2.5 Business Segment Descriptions

Operating in the speciality oils and fats industry, Bunge Loders Croklaan principally serves the food industry. The company is committed to offering a wide variety of premium, environmentally friendly, and cutting-edge solutions within this market segment that improve the flavour, texture, shelf life, and nutritional composition of various food products.

They are an essential partner for food makers aiming to improve the quality and sustainability of their products because of their wide range of products that include sectors including baking, frying, confectionery, and more. Having a strong commitment to ethical sources, Bunge Loders Croklaan works to lessen its influence on the environment and promote eco-friendly solutions in order to make sure that their products meet the steadily rising demand for morally and environmentally responsible food options.

In essence, Bunge Loders Croklaan's business sector description focuses on their position as a world leader in speciality oils and fats, committed to inventing solutions that satisfy changing customer demands and set an example for ethical and sustainable business practises in the food industry.

2.6 Organisational Chart

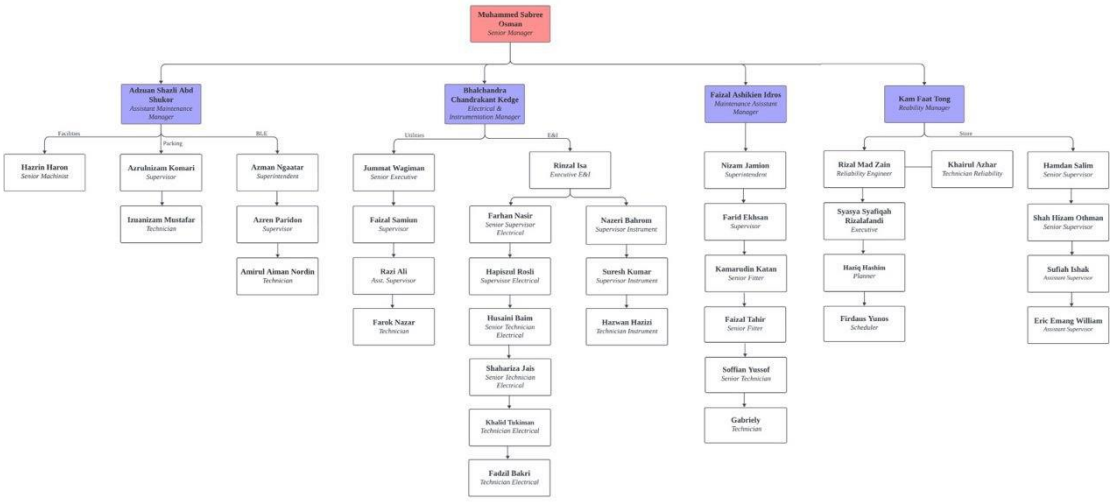

Figure 2.2 Organisational Chart of Maintenance Department in Bunge Loders Croklaan at Pasir Gudang site.

CHAPTER 3

OVERALL TRAINING GIVEN

3.1 Description of Department Assigned and Job scopes

During my internship, I was assigned to the Maintenance Department at Bunge Loders Croklaan, which specializes in the implementation of the Asset Reliability and Risk-Oriented Performance (ARROP) framework. The sustained operating effectiveness and dependability of the company's production facilities and equipment are critically dependent on this department. Their main focus is on proactive maintenance techniques that make use of risk assessment and data-driven insights to maximise equipment performance, reduce downtime, and increase asset lifespan.

The Bunge Loders Croklaan Maintenance Department uses cutting-edge technology and preventative maintenance strategies to minimise disruptions, improve safety, and save operating expenses, which contributes to the overall performance and sustainability of the company's industrial processes.

My internship at Bunge Loders Croklaan involves using cutting-edge technologies to maintain the equipment of the organisation while ensuring its dependability and performance. The division makes use of sophisticated technologies like the Leonova Diamond, a cutting-edge vibration analysis tool, and ultrasound technology. These tools are essential to preventive maintenance because they allow the team to continuously track ultrasound emissions and equipment vibrations.

The Leonova Diamond is a useful tool for identifying mechanical problems and anomalies, enabling prompt intervention to avoid future failures and extend the lifespan of crucial machinery. On the other hand, the ultrasonic instrument helps in identifying air and

steam leaks, electrical problems, and other problems that might not be visible through eye inspection alone.

Figure 3.1 Vibration inspection using Leonova Diamond

I had the chance to work with a sophisticated maintenance management system during my internship at Bunge Loders Croklaan in the maintenance department. This required the application of the Condmaster Ruby software, a potent tool that is essential to the maintenance plan. The Leonova Diamond devices can easily transfer data to laptops or other computers for analysis using Condmaster Ruby.

This software makes it possible to gather, store, and evaluate vibration data, which permits the early identification of equipment problems and anomalies. Condmaster Ruby's integration not only simplifies the monitoring procedure but also raises the overall dependability of crucial equipment.

The Leonova Diamond's vibration analysis capabilities and ultrasound devices, along with this sophisticated software, represent a thorough approach to asset reliability, highlighting the company's dedication to utilising cutting-edge technology to maintain operational effectiveness and avoid downtime. Using these tools and systems when I was an intern was beneficial and enlightening.

3.2 Tagging Pump at plant

In addition to my work with advanced maintenance technology, part of my job scope during my internship at Bunge Loders Croklaan in the Maintenance Department included learning and participating in the tagging process of pumps and equipment within the plant. This aspect of my internship involved the systematic and organized identification and labeling of various assets. The tagging process is essential for efficient asset management and maintenance. Each tagged item, such as pumps and equipment, is assigned a unique identifier, facilitating tracking, maintenance scheduling, and rapid response in case of issues or inspections.

This hands-on experience allowed me to gain a deeper understanding of asset management and its significance in ensuring smooth operations in a manufacturing facility. It also highlighted the company's commitment to precision and order in maintaining their equipment, contributing to the overall success of their production processes.

Figure 3.2 show how the service of pump is done

Figure 3.3 show tagging equipment at pump

CHAPTER 4

SPECIFIC TRAINIG OBTAINED

4.1 Lubrication of Bearing Course Training

Figure 4.1 Lubrication of Bearing Course Training

During my internship at Bunge Loders Croklaan within the Maintenance Department, I had the valuable opportunity to participate in a comprehensive two days training course focused on the lubrication of rolling element bearings. This training was conducted in a dedicated training room and encompassed both theoretical and practical components.

Figure 4.2 show doing automatic grease

The curriculum covered essential aspects of bearing maintenance, including bearing life, lubrication theory, contamination management, and service life. The training was designed to equip us with a deep understanding of how proper lubrication and maintenance can significantly impact the reliability and longevity of rolling element bearings.

What made this experience particularly enriching was the hands-on aspect of the training. We engaged in workshops and practical exercises, such as conducting the oil bleeding test, which allowed us to apply the theoretical knowledge we had acquired.

Figure 4.3 shows oil bleeding test

This holistic approach to learning not only deepened my understanding of bearing lubrication but also underscored the importance of meticulous maintenance in ensuring the smooth operation of critical equipment. The two-day training served as a vital and practical addition to my internship, enhancing my skill set and knowledge in the field of maintenance and reliability.

4.2 Laser Alignment Training

Figure 4.4 Laser Allignment Training

During my internship at Bunge Loders Croklaan in the Maintenance Department, I also had the privilege of participating in a laser alignment training conducted by Mr. Thama. The primary objective of this training was to provide a comprehensive understanding of laser alignment techniques and their critical role in the maintenance and reliability of industrial equipment.

The training focused on the theoretical and practical aspects of precision alignment, aiming to equip participants with the skills needed to ensure that rotating machinery, such as pumps and motors, are perfectly aligned. We learned about the detrimental effects of misalignment on equipment reliability, including increased wear and tear, reduced energy efficiency, and the risk of premature failures.

Figure 4.5 show the use of the laser alignment

Through hands-on exercises and practical demonstrations, we gained proficiency in using laser alignment tools to accurately align shafts and couplings. This training underscored the importance of precision alignment in minimizing equipment downtime and optimizing overall plant performance, making it a crucial skill for maintenance professionals in the field of industrial machinery reliability.

4.3 Chocolate Training

Figure 4.6 Chocolate Training

During my internship at Bunge Loders Croklaan, I had the unique opportunity to participate in a training session at the Creative Studio, which proved to be an enlightening and delightful experience. The primary objective of this training was to offer a comprehensive

understanding of the intricate world of chocolate production and explore the specific role of fats produced by the company in creating high-quality chocolate products.

Figure 4.7 Moulding chocolate

Throughout the training, we delved into the intricate processes involved in chocolate manufacturing. This included gaining insights into the machinery used, the art of crafting chocolate with varying melting points, and the meticulous process of molding chocolate into different forms.

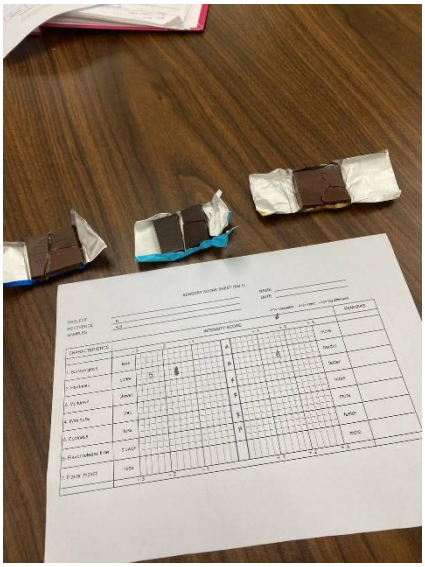

Figure 4.8 Sensory Test

We also conducted sensory tests to evaluate the quality of the chocolate, considering factors such as taste, texture, and aroma. What made this training particularly intriguing was

its connection to the fats produced by Bunge Loders Croklaan. These fats play a pivotal role in determining the shelf life and overall quality of chocolate products.

By understanding the interplay between fats and chocolate production, we gained valuable knowledge regarding the production of long-lasting, high-quality chocolates. This unique and hands-on experience not only broadened our appreciation for the art of chocolate-making but also highlighted the essential role that fats play in the creation of delightful and enduring chocolate products.

CHAPTER 5

CONCLUSION

Figure 5.1 Pasir Gudang site

My three-month internship at Bunge Loders Croklaan's Maintenance Department, aligned with my chemical engineering coursework, has been a profoundly enriching and insightful experience. Over this period, I had the privilege of gaining hands-on experience with cutting-edge maintenance technologies, such as the Leonova Diamond and Condmaster Ruby software, which are pivotal in ensuring the reliability and performance of the company's equipment.

Learning about precision alignment through the laser alignment training and gaining an in-depth understanding of the complexities of chocolate production added a fascinating dimension to my internship. These experiences have not only broadened my technical skills but also deepened my appreciation for the meticulous work that goes into maintaining industrial equipment and producing high-quality food products.

I'm grateful for the opportunity to contribute to the company's mission while furthering my academic and professional development. This internship has reinforced my passion for the

field of maintenance, reliability, and process engineering and has prepared me with practical knowledge that I am eager to apply in my future career as a chemical engineer.

CHAPTER 6

REFERENCES

Home: Bunge Loders croklaan. Home | Bunge Loders Croklaan. (n.d.). https://bungeloders.com/en