

# INDE3920

**Internship Report** 

Name: Feras Mohammad

Student ID: 19INDE1086

Date: 06/08/2023 - 31/08/2023

Course Code for the Internship	: INDE2910 🗆	INDE3910 □	INDE3920	INDE4920 □
--------------------------------	--------------	------------	----------	------------

Company Name: Arwad Alwaha

Company Address: Jordan, Amman, Alwaha street 23

Starting and Completion Dates: 06/08/2023 - 31/08/2023

Department(s) Worked In: Designing, Sales, Production, and control for quality.

Supervisor's Name, Position, Phone Number, Email: MR. Osama Atyani, Production manager, +962795065222



# **TABLE OF CONTENTS**

1 WEEKLY WORK PLAN	3
2 INTRODUCTIONS	6
2.1 The Company and Corporate Partnership	6
2.2 Industrial Sector and Customers	6
2.3 Technology in Manufacturing and Services	6
2.4 Organization	
3 OVERALL ANALYSIS	9
3.1 Input / Output Analysis	9
3.2 Layout	9
3.3 Location	
4 MANAGEMENT INFORMATION SYSTEM	13
4.1 Decision Making	13
4.2 Decision Support Systems	14
<b>5</b> MANUFACTURING SYSTEM	15
5.1 Materials	15
5.2 Manufacturing Mode	16
5.3 Shop Layout	16
5.4 Material Handling	17
5.5 Manufacturing Processes	17
5.6 Manufacturing Costs	18
5.7 Productivity	20
5.8 Production Planning and Control	20
5.9 Inventory	
5.10 Resource Allocation	21
5.11 Workforce Requirements	22
6 QUALITY PLANNING AND CONTROL	23
6.1 Quality of a Product or Service	23
6.2 Quality Features	23
6.3 Quality Assurance	23
6.4 Quality Assurance Tools	24
6.5 Cost of Quality	24
7 INDUSTRIAL ENGINEERS AT WORK	
7.1 Observation of Daily Activities	25
7.2 Interviews	25
7.3 2nd Interviews	28
8 CONCLUSIONS	31
8.1 Conclusion	31
8.2 Işık University Graduates at Workplace	31
8.3 Short Evaluation	31
<b>9</b> APPENDIX	32
9.1 Dictionary	32
9.2 References	33

# 1 WEEKLY WORK PLAN

#### Week 1

Department(s)	Tasks, Responsibilities, Accomplishments		
	Tasks:  1) Developed and implemented sales strategies for revenue growth.  2) Provided quotes and negotiated prices with customers.  3) Processed and tracked sales orders efficiently.  4) Coordinated with the production department for timely order delivery.		
Sales department	Responsibilities:  1) Met or exceeded sales targets and quotas.  2) Maintained accurate sales and customer information in the database.  3) Prepared sales reports and analyzed sales data.		
	Accomplishments:  1) Increased sales and revenue significantly.  2) Developed a loyal customer base through exceptional service.  3) Ensured high accuracy in sales and customer data.  4) Resolved customer complaints promptly and professionally.		

# Week 2

Department(s)	Tasks, Responsibilities, Accomplishments		
	Tasks:  1) Assisted in managing administrative processes and resources.  2) Supported office activities and policies.		
Administration Department	Responsibilities:  1) Ensured smooth day-to-day administrative operations.  2) Managed office records and documentation.		
	Accomplishments:  1) Improved administrative efficiency. 2) Implemented cost-saving measures for supplies. 3) Helped organize successful company events.		

# Week 3

Department(s)	Tasks, Responsibilities, Accomplishments		
Production department	Tasks:  1) Assisted in the production process and workflow.  2) Contributed to maintaining production schedules and quality standards.  Responsibilities:  1) Ensured efficient and smooth production operations.  2) Monitored and maintained inventory levels of production materials.		
	Accomplishments:		
	Improved production efficiency and output.		
	2) Supported the implementation of quality control measures.		

# Week 4

Department(s)	Tasks, Responsibilities, Accomplishments		
	Tasks:  1) Played an active role in creating and developing designs and drawings.  2) Collaborated effectively with the design team on various projects.		
Designing and drawing department	Responsibilities:  1) Ensured meticulous accuracy and precision in design and drawing tasks.  2) Supported the systematic documentation and organization of design files.		
	Accomplishments:  1) Made valuable contributions to the successful completion of design projects.  2) Maintained a well-organized design repository, promoting efficient workflows.		

#### 2 INTRODUCTION

#### 2.1 The Company and Corporate Partnership

AL Arwad is one of Jordan's largest companies for trading, designing, and manufacturing industrial materials for architectural and field investors in government projects such as bridges, highways and construction fields, The company was found in the year 1998, They stand proudly as the largest industry producer in the Governorate of Amman, the total number of their employees are 54.

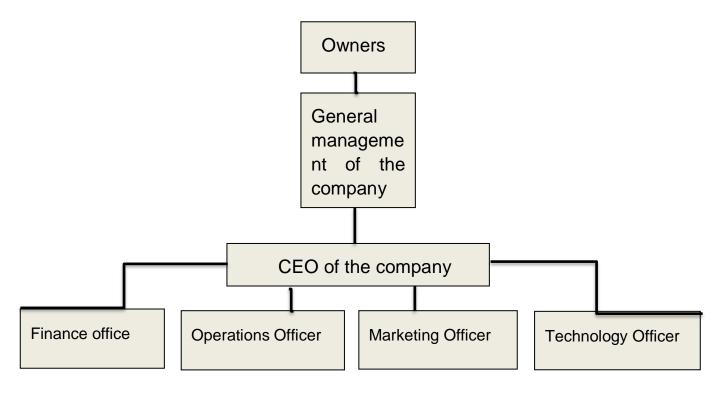
#### 2.2 Industrial Sector and Customers

In the industrial sector, the Arwad company served a diverse customer base, including manufacturers, builders, contractors, and retailers. These customers sought solutions for various applications in commercial buildings, residential properties, and industrial facilities. The company's design and drawing department played a crucial role in meeting customer demands by creating innovative designs and modifications. Ensuring precision and accuracy in their work, the team successfully completed projects and maintained a well-organized repository, enhancing the company's reputation and customer satisfaction.

#### 2.3 Technology in Manufacturing and Services

The company's clientele included manufacturing and service sectors. They offered advanced technology solutions to enhance productivity and quality. The technology department developed innovative technologies and automation systems, ensuring efficient and reliable operations. Their reputation for delivering high-quality solutions contributed to customer satisfaction and loyalty.

#### 2.4 Organization



Department	Sales Department
Number of Employees	4
Number of IEs	0

Main function, responsibilities, duties of the department

- Prospecting and identifying potential customers.
- Cultivating and Building relationships with customers.
- Offering comprehensive product information and guidance.
- Achieving and surpassing sales targets.

Functions and responsibilities currently performed by or would potentially be best performed by IEs.

- Analyzing production processes and workflows for optimization.
- Identifying inefficiencies and bottlenecks in manufacturing operations.
- Designing and implementing process improvements to enhance productivity.

Department	Administration	
Number of Employees	9	
Number of IEs	2	

Main function, responsibilities, duties of the department

• Planning and Management: Industrial Engineers are involved in strategic planning, designing efficient production systems, and managing project timelines to ensure smooth operations.

Functions and responsibilities currently performed by or would potentially be best performed by IEs.

• Factory Production Planning: IE engineers take charge of organizing and optimizing the production process within the factory, ensuring efficient resource allocation and meeting production targets.

Department	Production and the inventory department.
Number of Employees	41
Number of IEs	3

Main function, responsibilities, duties of the department

- manage machine operations for efficient production.
- oversee machinery maintenance for optimal performance.
- conduct checks to ensure quality and safety standards.
- manage inventory levels to avoid shortages and excess costs.

Functions and responsibilities currently performed by or would potentially be best performed by IEs.

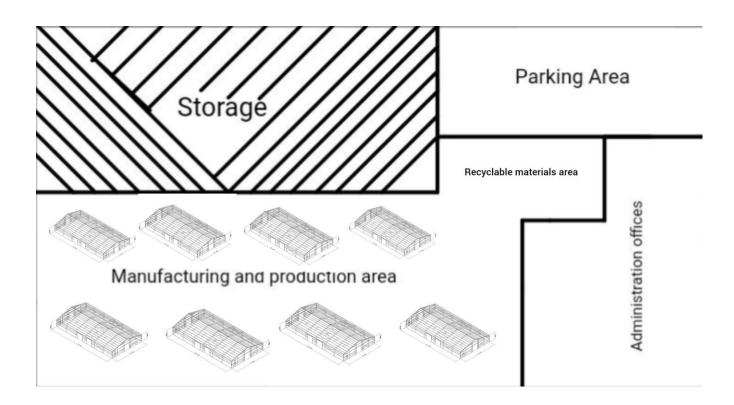
- Quality & Safety IE engineers ensure quality and safety standards.
- Machine Control IE engineers optimize machine performance.

#### 3 OVERALL ANALYSIS

#### 3.1 Input / Output Analysis

AL Arwad, a prominent Jordanian industrial powerhouse established in 1998, is a dynamic player in the trading, design, and manufacture of industrial materials catering to architectural and infrastructural demands. With a robust team of 54 skilled individuals, the company has solidified its position as the premier industry producer in Amman's Governorate. Distinguished for its exceptional offerings, AL Arwad addresses a diverse clientele encompassing manufacturers, builders, contractors, and retailers within the industrial sector. A solution-provider of choice, its range finds application across commercial, residential, and industrial domains, upholding its reputation for excellence. At the heart of AL Arwad's prowess lies its design and drawing department, a driving force in meeting client requisites. Pioneering innovative designs and modifications, this unit ensures meticulous precision and accuracy in project realization, leading to heightened levels of customer gratification. The technological acumen of AL Arwad is evident through its service portfolio. Through the development of avant-garde automation systems, the company enhances operational efficiency, a testament to their commitment to quality. This dedication to cutting-edge technology cultivates enduring client relationships, firmly anchoring AL Arwad as a dependable and coveted partner in the industrial landscape.

#### 3.2 Layout



#### 3.3 Location

	Very Important	Influential	Unimportant
Distribution needs for the products	*		
Availability or physical characteristics of raw materials	*		
Physical characteristics of the products		*	
Labor availability and quality	*		
Transportation facilities	*		
Proximity to suppliers			*
Flexibility		*	
Competitive Positioning	*		
Demand Management		*	
Access	*		
Visibility			*
Traffic			*
Parking			*
Expansion	*		
Environmental factors		*	
Laws, taxation, incentives, government politics etc.		*	
Cost of land and buildings	*		

# Distribution needs for the products:

The effectiveness of product distribution holds a pivotal role, exerting substantial influence over the company's holistic prosperity and profitability.

# Availability or physical characteristics of raw materials:

The accessibility and attributes of raw materials emerge as paramount, determining the company's capacity to produce and potentially impacting cost-effectiveness.

#### Physical characteristics of the products:

The design and attributes of products wield substantial influence, shaping customer appeal and market competitiveness.

#### Labor availability and quality:

The caliber and availability of the workforce significantly shape productivity and, by extension, the company's bottom line.

#### **Transportation facilities:**

Seamless transportation mechanisms bear importance, directly affecting cost management, customer contentment, and overall financial health.

# **Proximity to suppliers:**

In the context of this specific company and industry, proximity to suppliers may hold limited significance, thus being categorized as unimportant.

#### Flexibility:

The agility to adapt swiftly to market dynamics and customer preferences acts as a pivotal determinant of competitive advantage.

#### **Competitive Positioning:**

The company's relative market standing holds importance, influencing pricing strategies, market share, and overall financial performance.

#### **Demand Management:**

Accurate demand forecasting and management exert considerable influence, steering production efficiency, inventory control, and customer satisfaction.

#### Access:

Ensuring convenient product and service accessibility for customers yields notable impact on satisfaction and loyalty.

#### Visibility:

Visibility, while beneficial for some, holds relatively low significance in the priorities of this company or industry.

#### **Traffic:**

Given its external and uncontrollable nature, traffic conditions are assessed as having negligible bearing on day-to-day operations and profitability.

### Parking:

Similar to traffic, parking conditions are largely beyond the company's control and have minimal effect on operations or profitability.

# **Expansion:**

The company's capacity for expansion emerges as crucial, shaping long-term growth trajectories and overall financial success.

#### **Environmental factors:**

Environmental impact profoundly influences reputation, regulatory adherence, and the company's long-term viability.

#### Laws, taxation, incentives, government politics, etc.:

Government policies wield substantial influence, shaping operational landscapes, profitability, and the overall business environment.

**Cost of land and buildings:** Real estate expenditures, particularly for companies with substantial physical footprints, hold undeniable importance, affecting financial viability.

#### 4 MANAGEMENT INFORMATION SYSTEM

AL Arwad's Management Information System (MIS) is an intricate tapestry woven to optimize organizational operations. Through seamless data collection, processing, and dissemination, the MIS drives efficiency and success.

In production, the MIS meticulously tracks key metrics, production rates, and real-time line statuses. Sales benefits from customer insights, crafting targeted marketing strategies aligned with market trends.

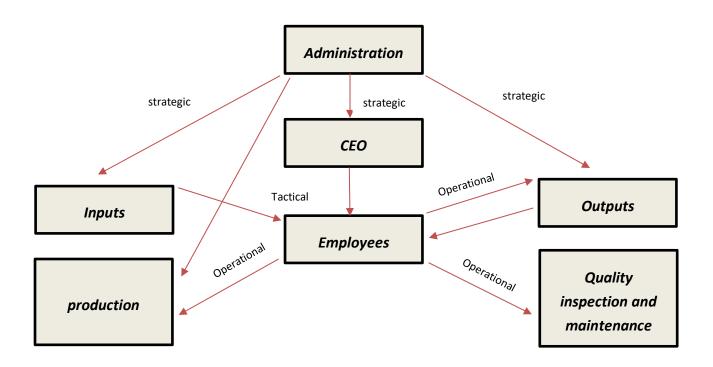
Quality control relies on the MIS for critical product quality data, guiding corrective actions. Maintenance accesses schedules, repair history, and spare part availability for streamlined upkeep.

The administration gains panoramic insights, overseeing performance, finances, employee achievements, and compliance. The MIS transcends technology, becoming the lifeblood of AL Arwad, harmonizing diverse departments.

In an era driven by data, AL Arwad's MIS is a guiding star, illuminating innovation, agility, and growth. It exemplifies the fusion of technology and strategy, propelling AL Arwad to new heights of achievement and prosperity.

#### 4.1 Decision Making

At the strategic level, high-ranking executives shape the company's long-term trajectory. These decisions are farreaching, directing the organization's overall course. Tactical decisions, orchestrated by middle management, bridge the gap between strategic vision and operational execution, addressing medium-term objectives. In contrast, operational decisions, championed by lower-level managers and staff, revolve around the nitty-gritty of daily operations, ensuring the company's gears keep turning smoothly.



#### 4.2 Decision Support Systems

DSS	Decision type (Strategic/ Tactical/ Operational )	Usage frequency (Daily, weekly, monthly, yearly)	Developed by (Internally or third party)	Used by (Departments )	Number of users	Used for (Describe)
Marketing	Strategic	Monthly	Internally	Administration (Marketing Officer)	3	Sales forecasting and budgeting
Financial Analysis	Strategic	Daily	Internally	Finance, Executive Management ( Financial officer)	4	To analyze financial data and make strategic decisions for the company
Production and Scheduling	Operational	Weekly	Internally	Industrial engineers' administration (operating officer)	4	Inventory management and order fulfillment

PRDSS (Production Decision System): Enables efficient manufacturing oversight through optimized schedules, enhancing output and on-time fulfillment.

HRDSS (Human Resources Decision System): Assists HR professionals in talent management, aiding recruitment, performance evaluation, and workforce planning.

ITDSS (IT Decision System): Informs strategic IT choices, guiding upgrades, cybersecurity measures, software selection, and tech investments.

LGDSS (Logistics Decision System): Streamlines supply chains via route optimization, inventory control, demand forecasting, and enhanced distribution networks.

PRMDSS (Product Marketing Decision System): Equips teams with market insights for product innovation, positioning, and promotion, enhancing overall strategy.

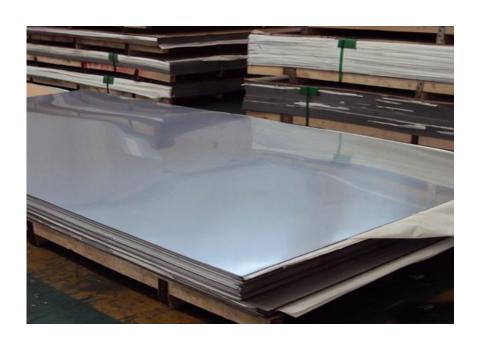
# **5 MANUFACTURING SYSTEM**

# 5.1 Materials

Steel, Aluminum, Plastic, Wood, Glass, Concrete, Rubber, Ceramics, Textiles, Composite materials, electronic components, Chemicals and solvents, Adhesives and sealants, Lubricants and oils, Packaging materials.



**Galvanized Tubes** 



Galvanized sheets

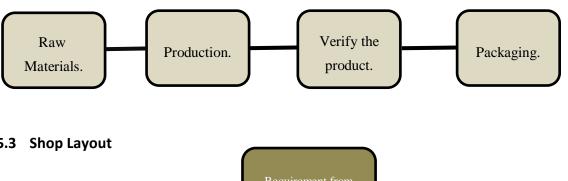
` 15

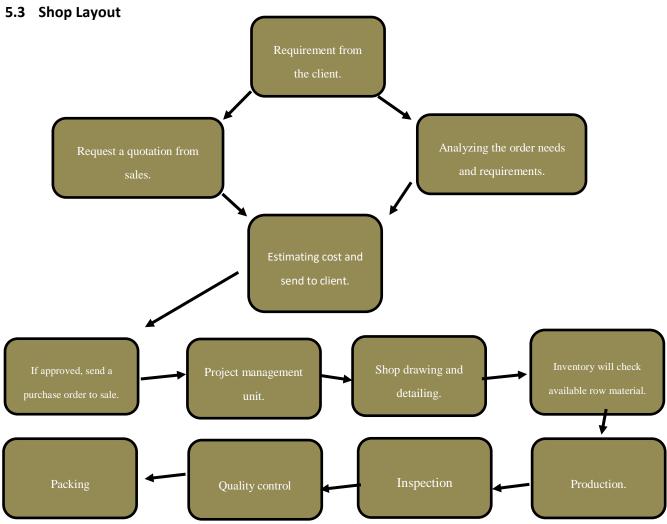
blend of artistry and engineering. The process begins with design and material selection, where iron or steel is chosen for its strength and malleability. Skilled craftsmen then shape and manipulate the metal through forging, bending, and welding, meticulously joining components to ensure structural integrity. Surface treatments like sandblasting, priming, and finishing techniques enhance the appearance and prevent corrosion.

Components are assembled and transported to the installation site, where skilled teams secure them in place. The result is a harmonious integration of art and functionality, enriching the architectural landscape. This process demands expertise in metalwork, welding, and finishing to create enduring, visually stunning ironwork that stands as a testament to both craftsmanship and design.

#### 5.2 Manufacturing Mode

Arwad Products Company owns a production line that transfers the finished products. The attractiveness of this type of pattern is the raw materials that are continuously processed to produce more power units.

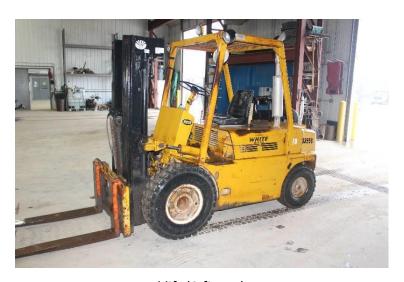




Taking into account elements like the emphasis on manufacturing excellence, competitive positioning, operational efficiency, and effective supply chain management, it is conceivable that Al Arwad Company might employ a blend of process-centric design, adaptable layout, demand-driven design, and streamlined layout in its industrial engineering approach. These designs would seek to highlight manufacturing processes, accommodate fluctuations in demand, establish an efficient workflow, and optimize the movement of materials within the production facility.

#### 5.4 Material Handling

A forklift, a common tool for material handling, is a versatile machine adept at lifting and moving large loads of materials within company boundaries. The forklift acts as a logistics workhorse, and the main role of the heavy-duty company's forklift is to enhance the effectiveness and productivity of material handling operations. By quickly and safely moving heavy materials or products from point to point, a forklift simplifies internal logistics, boosting efficiency across the board. This pivot equipment acts as a key element, which facilitates seamless movement and contributes to operational smoothness. Warehouses are also arranged through them.



Forklift (2 figure)

#### 5.5 Manufacturing Processes

The company adopts a continuous process manufacturing approach, where materials seamlessly transition through a succession of production phases to culminate in the final product. This method embraces a smooth flow, with machinery facilitating the material's progressive transformation, resulting in a streamlined and efficient production process.

• An example of the mechanisms that are used for production such as



packaging machine.



steel cutting machine.

# **5.6 Manufacturing Costs**

Within the manufacturing realm, the cost breakdown table delineates distinct elements encompassing the production journey. Encompassed are direct material outlays, direct labor expenses, overhead costs, and equipment and machinery investments, alongside packaging and shipping expenditures. Delving into these cost facets serves as a compass, unveiling opportunities to economize and enhance processes. This navigation towards cost-effectiveness and heightened market competitiveness stands as a pivotal factor in realizing profitability.

Hourly cost factor: The man-hour cost is 6 JD per hour, and it requires 60 hours of labor to manufacture.

Hourly cost factor =  $35 \text{ JD/hour } \times 60 \text{ hours} = 360 \text{ JD}$ 

The cost of raw materials required to manufacture is 620 JD.

Overhead Cost: The overhead cost is the 15% of the hourly cost factor and raw material cost combined.

Overhead Cost = 15% x (Hourly cost factor + Raw Material Cost)

Overhead Cost =  $15\% \times (360 \text{ JD} + 620 \text{ JD})$ 

Overhead Cost = 147 JD

,

Transportation Cost: The transportation cost is a fixed price of 1100 JD for one truck.

Installation Cost: The installation cost is 10% of the total cost, which includes the man-hour cost, raw material cost, overhead cost, and transportation cost.

 $Installation \ Cost = 10\% \ x \ (Hourly \ cost \ factor + Raw \ Material \ Cost + Overhead \ Cost + Transportation \ Cost)$ 

Installation Cost =  $10\% \times (360 \text{ JD} + 620 \text{ JD} + 147 \text{ JD} + 1,100 \text{ JD}) = 2,227 \text{ JD}$ 

Total Manufacturing Cost = Hourly cost factor + Raw Material Cost + Overhead Cost + Transportation Cost + Installation Cost

Total Manufacturing Cost =  $360 \text{ JD} + 620 \text{ JD} + 147 \text{ JD} + 1{,}100 \text{ JD} + 2{,}227 \text{ JD} = 4{,}454 \text{ JD}$ 

Production cost components	Time Frequency
Taxes	Yearly
Insurance	Yearly
Raw Materials	Monthly
Salaries	Monthly
Logistics Costs	Monthly
Rental Fees	Monthly
Production Costs (Electricity, Water)	Monthly
Temporary Costs (Temporary Labor, Rental Machine)	Monthly
Logistics Costs	Daily

#### 5.7 Productivity

The productivity tableau at Al Arwad Company presents pivotal productivity indicators intertwined with the manufacturing continuum. This tableau encompasses pivotal gauges encompassing output volume, labor utilization, and production adeptness. Scrutinizing these metrics unveils a lens through which to gauge the operational efficiency and potency of the manufacturing endeavors. By delving into and augmenting productivity facets, Al Arwad Company stands poised to elevate its holistic performance, forging an upward trajectory in terms of overall operational effectiveness and market competitiveness. This concerted effort towards heightened productivity serves as an instrumental compass in navigating the path towards enhanced performance and sustained success within the industry.

(To calculate labor productivity).

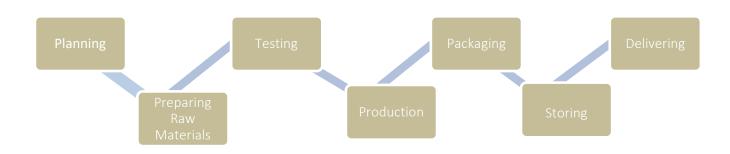
Labor productivity = Value of goods produced / Total labor hours

(To calculate material productivity).

Material productivity = Value of goods produced / Total material input

#### 5.8 Production Planning and Control

Production Planning and Control constitutes a vital linchpin for Al Arwad Company, an eminent architectural materials manufacturer. Embracing a make-to-order modus operandi, they intricately align production dynamics with customer requisites. Proficiently orchestrated planning, synchronization, and integration of cutting-edge technologies synergize to fine-tune manufacturing protocols. This orchestration amplifies production efficiency, perpetuates product excellence, and ushers forth a diverse spectrum of top-tier architectural materials. Their resolute commitment extends to endowing both individual clients and enterprises in the architectural arena with superlative solutions. This synergy of foresight and precision establishes Al Arwad Company as an industry exemplar, seamlessly bridging architectural aspirations with tangible manifestations, encapsulating the very essence of form and function.



#### 5.9 Inventory

Al Arwad Company's inventory management is a strategic cornerstone, ensuring operational continuity and customer satisfaction. With a diverse range of architectural materials, they deftly balance supply and demand, employing insightful forecasting to optimize stock levels. This approach prevents overstocking and stockouts, enhancing efficiency and cost-effectiveness.

Beyond logistics, quality control is integral. Incoming materials undergo rigorous assessment before integration, guaranteeing superior product standards. This dual focus on quantity and quality safeguards seamless production cycles and agile responses to market trends.

In essence, Al Arwad's inventory management isn't just about stock; it's a testament to their commitment to excellence. By harmonizing inventory intricacies, they uphold operational resilience, swift order fulfillment, and a reputation as a dependable provider of premium architectural materials.

#### 5.10 Resource Allocation

Resource allocation holds paramount significance in Al Arwad Company's production planning and control endeavor. Amidst the dynamic realm of architectural materials, scarce resources stand tall, shaping the orchestration of operations:

- 1) Raw Materials: Al Arwad judiciously allocates raw materials, meticulously syncing them with production demands.
- 2) Labor: The allocation of skilled labor is tactfully managed, harnessing expertise to optimize manufacturing efficiency.
- 3) Equipment: Al Arwad deftly coordinates equipment utilization, ensuring maximal operational output.
- 4) Time: Time allocation is a strategic endeavor, with each moment harnessed to yield optimal productivity.

This orchestration transpires within the production planning and control process. Here, interdepartmental coordination converges, and resources are methodically distributed in alignment with the production blueprint. Adapting to resource availability, equipment capacity, and workforce proficiency, the production plan strives for efficiency and efficacy, fostering a production process that epitomizes Al Arwad's commitment to excellence.

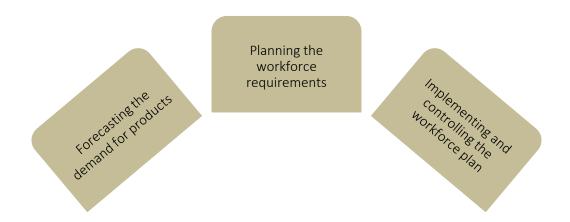


#### **5.11 Workforce Requirements**

Al Arwad Company's managerial prowess shines in the realm of workforce requirement planning. With a discerning eye on production capacity and customer cravings, astute managers finetune the workforce configuration. This might entail welcoming new team members or orchestrating shifts for a harmonious match with demand.

The intricate dance between capacity and demand emerges as a central theme, weaving a narrative of strategic complexity. Managers skillfully tread this terrain, balancing the scales between demand satisfaction and production prowess.

Woven into Al Arwad's production planning and control mosaic is a symphony of resource allocation and workforce harmonization. This orchestrated rhythm sets the stage for an unrivaled production landscape, ensuring the seamless creation of their architectural marvels, a testament to Al Arwad's unwavering dedication to manufacturing excellence.



#### **6 QUALITY PLANNING AND CONTROL**

#### 6.1 Quality of a Product or Service

Operating within a daily production rhythm, Al Arwad Company places prime importance on meeting Jordan's Ministry of Health benchmarks, underscoring their unwavering commitment to quality. The pursuit of excellence starts with sourcing superior raw materials, such as architectural components, from trusted origins. This meticulous approach extends across their production spectrum, ensuring a final product of utmost authenticity and caliber. By steadfastly adhering to these principles, Al Arwad embodies a dedication to both regulatory standards and the highest echelons of quality within the architectural materials industry.

#### 6.2 Quality Features

Distinguished by an unwavering commitment to quality, Al Arwad Company stands tall with a core value that propels its triumphs. At the heart of this achievement lies a resolute dedication to upholding pinnacle quality standards across its diverse product line. This feat is achieved through the amalgamation of contemporary scientific methodologies, perpetual research, and developmental endeavors. Notably, customer aspirations and requisites form a compass guiding this pursuit. Al Arwad's comprehensive array of architectural materials, spanning from robust steel structures to intricate designs, resonates with an unparalleled quality that leaves an indelible mark. This dedication reverberates through the very essence of their creations, embodying a commitment not only to industry standards but also to the elevated expectations and gratification of their clientele.

#### 6.3 Quality Assurance

Quality Assurance (QA) stands as a cornerstone in Al Arwad Company's ethos, driving a steadfast commitment to excellence. This approach is deeply rooted in each facet of their architectural materials' journey:

- 1) Stringent Standards: QA begins with sourcing, as Al Arwad meticulously selects premium raw materials. Each component, handpicked for quality, becomes a testament to their dedication.
- 2) Precision Craftsmanship: The manufacturing process is a symphony of precision, guided by meticulous protocols and modern techniques. Each step echoes the pursuit of perfection.
- 3) Rigorous Inspection: At every juncture, thorough inspection ensures adherence to specifications. From material assessment to welding and assembly, Al Arwad employs a vigilant eye.
- 4) Customer Trust: The ultimate testament to QA is in customer satisfaction. Al Arwad's creations embody trust, delivering products that seamlessly merge durability, functionality, and aesthetic finesse.

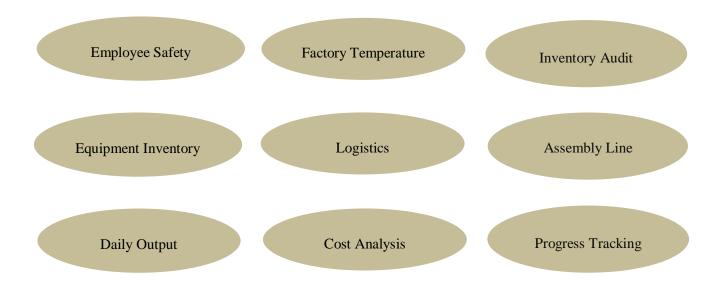
In essence, Quality Assurance at Al Arwad is a symphony of meticulous planning, skilled craftsmanship, and a relentless pursuit of excellence. It converges to orchestrate a production landscape that seamlessly marries innovation with unwavering quality, positioning Al Arwad as a paragon of architectural perfection.

Where did get ISO 2008.

#### 6.4 Quality Assurance Tools

An array of precision instruments and methodologies stands as sentinels in Al Arwad Company's commitment to unparalleled quality and safety standards. These instruments encompass laboratory analyses, meticulous quality inspections, and a comprehensive documentation process. A cohort of adept quality assurance professionals oversees the production, ensuring each creation aligns with the company's lofty benchmarks.

In tandem, Al Arwad employs a systematic manual checklist for Industrial Engineers (IE).



Through this fusion of cutting-edge quality assurance tools and a comprehensive checklist, Al Arwad's dedication to crafting safe, innovative, and exceptional architectural materials remains resolute, nurturing a legacy of trust and excellence.

#### 6.5 Cost of Quality

As a premier architectural materials manufacturer, Al Arwad Company is resolute in delivering impeccable products to our clientele. This commitment resonates through investments made to uphold quality across the production continuum. The realm of Cost of Quality (COQ) encompasses an amalgamation of efforts, encompassing preventive, detection, and correction expenditures.

By nurturing an unwavering emphasis on quality in each production facet, Al Arwad diligently curtails its COQ. This harmonious orchestration ensures that our esteemed customers are bestowed with architectural materials of uncompromising excellence, adeptly aligned with their discerning expectations.

#### 7 INDUSTRIAL ENGINEERS AT WORK

#### 7.1 Observation of Daily Activities

For industrial engineers (IE) at Al Arwad Company, the daily observation of activities assumes paramount importance, serving as a compass for refining and optimizing operational dynamics. Within the architectural materials domain, an IE meticulously scrutinizes the daily functions of the production line. This encompasses a comprehensive view - from raw material handling to equipment upkeep and the seamless flow of products across the facility.

In this practice, the IE keenly discerns potential bottlenecks and avenues for process enhancement. This discernment is a catalyst, propelling Al Arwad towards heightened efficiency and amplified productivity. The art of observation serves as a linchpin, channeling the company's drive for continuous improvement, ultimately culminating in an operational landscape that epitomizes excellence and innovation.

#### 7.2 Interviews

With (Eng. Osama atyani).

a) Can you tell me about your education life? What degrees from which schools do you hold? What are the years of these degrees?

I studied at a school in Canada, and then went on to earn my degree at University of Jordan in Jordan in Amman. I spent five years studying, and ultimately earned my degree from University of Jordan

b) Can you tell me about your career? In which positions, for which companies and for what periods of time did you work before? Which one of those provided you skills and background that helps you fulfill your responsibilities today at this position?

I started working with Al-Arwad Company, which was founded by my father after I graduated from the University of Jordan in Amman to this day. I am the manager of this company with more than 15 years of experience. I worked for the iceberg company and this company making ice cream in Amman for two years during the Corona period 2019-2021 After that, I returned to the management of Al-Arwad Company again.

c) How do you like your current position? Can you use all of your skills and experience in this position?

I find immense contentment in my present role at Al Arwad Company. It's a seamless meld of my skillset and professional journey, where I effectively apply years of acquired expertise. As a production manager, I orchestrate the production trajectory, ensuring its seamless and efficient course. My pivotal responsibility encompasses not only overseeing the process but also mentoring a dedicated team of production professionals. Collaborating with my colleagues and offering them guidance fuels my enthusiasm.

The rich tapestry of my past experiences has aptly equipped me for this role, and my journey as a production manager is an ongoing voyage of growth and knowledge acquisition. At Al Arwad, I'm not only embracing the present but also carving a path towards an ever-evolving future. This role resonates with me profoundly, offering an avenue to channel my skills and insights for a positive imprint on the company's trajectory.

d) How do you like this company? What can you tell me about the corporate culture at this company? What business practices do you like or dislike? What do you think this company does well, compared to its competitors? What about the things that should be improved?

My affiliation with Al Arwad Company is a source of genuine satisfaction. The company's corporate fabric is woven with values that underscore unity, collaboration, and individual responsibility. The emphasis on fostering a culture of open dialogue resonates with me deeply, as it underscores the significance of diverse viewpoints and collective engagement.

Al Arwad's business ethos adeptly navigates the tides of customer needs and market dynamics. Efficaciously catering to customer requisites while upholding competitiveness is a hallmark of their approach. Their commendable reputation for crafting top-tier architectural materials reverberates, extending their footprint to international realms like Saudi Arabia, Kuwait, UAE, and beyond.

At its core, Al Arwad's enduring appeal lies in a symbiotic blend of values and acumen. This resonates profoundly with me, as it presents an avenue to contribute within an ecosystem that champions innovation, quality, and global outreach.

- e) Do you think that the IEs in Turkey and in particular in this sector of business are employed in jobs that are most suited for them? Do you think that the managers know enough about the profession of industrial engineering? How do you see the future of industrial engineers? Industrial engineers (IEs) in Turkey's business sector appear well-suited for their roles, leveraging their skills effectively. While progress is evident, there could be increased awareness among managers about the breadth of IE capabilities. Looking ahead, the future for IEs seems promising, driven by technology and the need for efficiency. Their knack for optimization positions them as key players in shaping business
- f) What would you recommend to a prospective IE in preparing for and shaping their career? What would be the most essential skills soon-to-be graduates should aim to acquire? What do the hiring executives look for in new graduates? What makes a candidate better than others in the interviews and hiring process?

For aspiring Industrial Engineers:

- 1) Skill Variety: Develop problem-solving, data analysis, project management, and communication skills.
- 2) Technical Proficiency: Master relevant software and tools, like simulation and data analytics.
- 3) Practical Experience: Gain internships or co-op exposure for real-world skills and networking.
- 4) Continuous Learning: Stay updated with industry trends and consider certifications.
- 5) Soft Skills: Enhance interpersonal and communication abilities.

operations for enhanced productivity and resource utilization.

#### Executives seek graduates with:

- 1) Adaptability: Quick adjustment to changing situations.
- 2) Problem-Solving: Skill in tackling complex issues.
- 3) Team Player: Collaboration prowess in diverse teams.

- 4) Leadership Potential: Initiative and leadership capabilities.
- 5) Communication: Strong verbal and written skills

In interviews, standout candidates:

- 1) Express Enthusiasm: Show passion for the field and the company.
- 2) Highlight Achievements: Detail real-world applications of skills.
- 3) Exhibit Soft Skills: Showcase teamwork and effective communication.
- 4) Ask Insightful Questions: Inquire about culture and growth prospects.
- 5) Cultural Fit: Align with the company's values and mission.

A blend of technical prowess, adaptability, effective communication, and enthusiasm can set candidates apart in the competitive hiring process.

# g) How important do you think the functions performed by IEs in this company are for the success and improvement of it?

Industrial Engineers (IEs) are vital drivers of Al Arwad Company's success. Armed with technical prowess, they optimize processes, enhance efficiency, and trim costs. IEs contribute by crafting efficient production systems, strategic supply chains, and refined logistics. Their influence extends to elevating product and service quality for customers. In this role, IEs shape a path of excellence, underpinning the company's progress and customer satisfaction.

#### h) Would you study industrial engineering again if you were getting a degree today? Why?

Absolutely, yes. The prospect of studying industrial engineering again would be my clear choice. Its dynamic blend of problem-solving, innovation, and process optimization remains as appealing as ever. The chance to contribute to business success and adapt to evolving challenges is truly compelling.

#### i) What knowledge from your classes did you have a chance to use in your job?

I have applied a diverse spectrum of knowledge from my classes in my job. Engineering principles, data analysis, and project management have been crucial. Optimization, quality control, and communication skills have all played a significant role in enhancing processes and ensuring quality. My education continues to be a cornerstone of my professional achievements.

#### j) What course(s) would you take if you could go back to university?

I'd prioritize courses on emerging technologies like AI and data science, alongside sustainability and environmental impact. Enhancing soft skills in communication, writing, and critical thinking would round out my curriculum. The aim is to equip myself with a versatile toolkit that aligns with evolving trends and ensures well-rounded career success.

#### 7.3 2<sup>nd</sup> Interviews

Online, Zoom meeting, With (Eng. Mohammad Hamdan).

- a) Can you tell me about your education life? What degrees from which schools do you hold? What are the years of these degrees?
  - I continued my studies in Germany for 5 years, then I obtained a master's degree at the Hashemite University in Zarqa, and in high school, I started at Al-Qabisi Secondary School.
- b) Can you tell me about your career? In which positions, for which companies and for what periods of time did you work before? Which one of those provided you skills and background that helps you fulfill your responsibilities today at this position? I started working with Pepsi after graduating from the Hashemite University with a master's degree in Zarqa Governorate, then I moved to Arwad Company. I work as a consulting manager for the company and have more than 5 years of experience.
- c) How do you like your current position? Can you use all of your skills and experience in this

If ind immense satisfaction in my current position as a Consulting Manager at Al Arwad Company. It's a harmonious fusion of my skill set and professional journey, allowing me to leverage years of accumulated expertise effectively. In my role, I act as the orchestrator of consulting initiatives, ensuring a seamless and efficient course for our clients. My pivotal responsibility extends beyond overseeing the consulting process to mentoring a dedicated team of professionals, fostering collaboration, and providing guidance. Collaborating with my colleagues and assisting them in navigating complex consulting projects fuels my enthusiasm. The diverse experiences I've amassed over the years have uniquely prepared me for the challenges of this role. My journey as a Consulting Manager is an ongoing voyage of growth and knowledge acquisition. At Al Arwad, I'm not only embracing the present but also charting a course towards an ever-evolving future in the consulting realm. This role resonates with me profoundly, providing a platform to channel my skills and insights for a positive impact on the company's trajectory and the success of our clients.

d) How do you like this company? What can you tell me about the corporate culture at this company? What business practices do you like or dislike? What do you think this company does well, compared to its competitors? What about the things that should be improved?

My connection with Al Arwad Company as a Consulting Manager brings me genuine fulfillment. The company's foundation is built on values that highlight unity, collaboration, and individual responsibility, creating a corporate environment that resonates with my own principles. The emphasis on cultivating a culture of open dialogue holds significant meaning for me, emphasizing the importance of diverse perspectives and collective engagement.

Al Arwad's business philosophy adeptly maneuvers through the ever-changing landscape of customer needs and market dynamics. Their commitment to meeting customer requirements while maintaining a competitive edge is a defining feature of their approach. The company's noteworthy reputation in delivering high-quality consulting services echoes across borders, reaching international markets such as Saudi Arabia, Kuwait, UAE, and beyond. At its essence, Al Arwad's enduring appeal lies in the

harmonious blend of values and business acumen. This resonates deeply with me, providing an opportunity to contribute within an ecosystem that champions innovation, quality, and global outreach. It's not just a job; it's a chance to be part of a forward-thinking organization that aligns with my professional aspirations and values.

e) Do you think that the IEs in Turkey and in particular in this sector of business are employed in jobs that are most suited for them? Do you think that the managers know enough about the profession of industrial engineering? How do you see the future of industrial engineers?

Industrial engineers (IEs) operating in Turkey's business sector exhibit a strong alignment with their roles, effectively utilizing their skill sets. Although strides have been made, there exists an opportunity for greater awareness among managers regarding the full spectrum of IE capabilities. Looking forward, the outlook for IEs appears promising, fueled by technological advancements and the growing demand for efficiency. Their expertise in optimization positions them as pivotal contributors in molding business operations to achieve heightened productivity and optimal resource utilization.

f) What would you recommend to a prospective IE in preparing for and shaping their career? What would be the most essential skills soon-to-be graduates should aim to acquire? What do the hiring executives look for in new graduates? What makes a candidate better than others in the interviews and hiring process?

For individuals aspiring to become Industrial Engineers:

- 1) Diverse Skill Development: Cultivate a range of skills, including problem-solving, data analysis, project management, and effective communication.
- 2) Technical Mastery: Proficiency in relevant software and tools, such as simulation and data analytics, is crucial for success.
- 3) Practical Exposure: Seek internships or co-op opportunities to gain real-world skills and build a professional network.
- 4) Continuous Growth: Stay abreast of industry trends, and consider obtaining certifications to enhance your knowledge base.
- 5) Soft Skill Enhancement: Improve interpersonal and communication abilities to complement technical expertise.

Qualities sought by executives in recent graduates include:

- 1) Adaptability: Demonstrate the ability to swiftly adjust to changing situations.
- 2) Problem-Solving Acumen: Showcase skills in effectively addressing complex issues.
- 3) Collaborative Team Player: Exhibit prowess in collaborating within diverse teams.
- 4) Leadership Potential: Display initiative and leadership capabilities.
- 5) Effective Communication: Strong verbal and written communication skills are highly valued. In interviews, exceptional candidates tend to:
- 1) Express Enthusiasm: Convey genuine passion for both the field and the prospective company.

- 2) Highlight Achievements: Provide concrete examples of applying skills in real-world scenarios.
- 3) Demonstrate Soft Skills: Showcase effective teamwork and communication abilities.
- 4) Pose Insightful Questions: Inquire about the company's culture and growth opportunities to demonstrate genuine interest.
- 5) Cultural Alignment: Align with the company's values and mission to ensure a good fit. A combination of technical proficiency, adaptability, strong communication, and enthusiasm will distinguish candidates in a competitive hiring process.

# g) How important do you think the functions performed by IEs in this company are for the success and improvement of it?

IEs at Al Arwad Company are instrumental in driving success through technical expertise, optimizing processes, and cutting costs. They design efficient production systems, strategic supply chains, and refined logistics, influencing product and service quality. IEs shape a path of excellence, crucial for the company's progress and customer satisfaction.

#### h) Would you study industrial engineering again if you were getting a degree today? Why?

Certainly! Without a doubt, I would choose to study industrial engineering again. The dynamic combination of problem-solving, innovation, and process optimization remains highly attractive. The opportunity to contribute to business success and adapt to ever-changing challenges is genuinely compelling.

# i) What knowledge from your classes did you have a chance to use in your job?

I've implemented a broad range of insights gained from my academic studies in my professional role. Fundamental engineering principles, data analysis, and effective project management have proven indispensable. The application of optimization strategies, commitment to quality control, and honed communication abilities have collectively contributed significantly to process improvement and quality assurance. My educational foundation remains pivotal to my ongoing professional accomplishments.

#### j) What course(s) would you take if you could go back to university?

If I could return to university for industrial engineering, I would opt for courses that delve into cuttingedge technologies like artificial intelligence and data analytics. Sustainability and environmental impact studies would also be a priority to align with the growing emphasis on eco-friendly practices in industrial processes. Additionally, I'd aim to enhance my soft skills, including communication, writing, and critical thinking, to ensure a comprehensive and relevant education for the evolving landscape of industrial engineering.

#### 8 CONCLUSION

#### 8.1 Conclusion

In conclusion, my internship at Al Arwad Company has been a rewarding experience. Immersed in the world of industrial design and manufacturing, I've gained practical insights into architectural materials production. Collaborating with experts, I contributed to projects, enhanced technical skills, and witnessed quality control processes. The inclusive environment nurtured teamwork and interpersonal abilities.

I'm grateful for the opportunity to learn from dedicated professionals and engage in hands-on work. These experiences have enriched my understanding of real-world operations and industry practices. I'm confident that the lessons learned, and skills acquired during my time here will greatly benefit my future pursuits in industrial design and manufacturing. My sincere thanks to the Al Arwad team for their guidance and support throughout this impactful internship.

31

#### 8.2 Işık University Graduates at Workplace

Unfortunately, Al Arwad company is out of Turkey so there's no one working there.

#### 8.3 Short Evaluation

Answer the following questions on a scale from 1 (worst) to 5 (best).

	1	2	3	4	5
Would you recommend					
others to do their internship					*
in this company?					
How would you rate your					*
internship?					*
Was your internship helpful?					*

#### 9 APPENDIX

#### 9.1 Dictionary

**Al Arwad Company**: A leading industrial enterprise in Jordan specializing in the design, trading, and manufacturing of architectural materials for various construction projects.

**Architectural Materials**: Diverse materials used in construction projects, including iron, steel, aluminum, and other specialized components for bridges, highways, and commercial buildings.

**Industrial Sector**: The segment of the economy involved in the production and processing of materials, often on a large scale. Al Arwad Company operates within this sector.

**Design and Drawing Department**: A specialized division within Al Arwad Company responsible for creating innovative designs, modifications, and drawings to meet customer requirements.

**Quality Control**: The process of ensuring that products and services meet specified standards and customer expectations. Al Arwad Company employs rigorous quality control measures to maintain product excellence.

**Production Process**: The sequence of steps involved in transforming raw materials into finished products. Al Arwad Company's production process includes cutting, welding, assembly, and surface treatment.

**Resource Allocation**: The strategic distribution of available resources, such as raw materials, labor, and equipment, to optimize production efficiency and meet customer demands.

**Supply Chain**: The network of organizations, people, activities, information, and resources involved in moving products from suppliers to customers. Al Arwad Company focuses on enhancing its supply chain for seamless operations.

**Continuous Improvement**: A philosophy of constantly seeking ways to enhance processes, reduce waste, and increase efficiency. Al Arwad Company emphasizes continuous improvement to drive growth and excellence.

**Technological Integration**: The incorporation of advanced technologies, such as automation and data analytics, into various aspects of production and operations to improve productivity and decision-making.

**Operational Excellence**: A state of achieving optimal performance, efficiency, and quality across all operational functions. Al Arwad Company strives for operational excellence in its production and service delivery.

**Quality Assurance**: A set of systematic activities designed to ensure that products and services meet specified quality standards. Al Arwad Company employs quality assurance measures to uphold product integrity.

**Project Proposal**: A formal document outlining the scope, objectives, methodology, and expected outcomes of a proposed project. Al Arwad Company may use project proposals to plan and execute initiatives.

**Cost of Quality (COQ):** The sum of all costs associated with ensuring product and service quality, including prevention, detection, and correction of defects. Al Arwad Company monitors COQ to optimize quality-related expenses.

**Production Planning and Control:** The process of organizing and managing production activities to meet customer demands while maintaining efficient resource utilization. Al Arwad Company focuses on effective production planning and control.

**Industrial Engineering:** The discipline that applies engineering principles and techniques to optimize complex systems, processes, and organizations. Al Arwad Company benefits from industrial engineering concepts to enhance its operations.

**Resource Utilization**: The efficient allocation and management of available resources, such as materials, labor, and equipment, to achieve optimal production outcomes. Al Arwad Company emphasizes resource utilization for efficiency.

**Supply Chain Optimization**: The strategic improvement of supply chain processes to enhance efficiency, reduce costs, and deliver products to customers in a timely manner. Al Arwad Company seeks to optimize its supply chain operations.

**Emerging Technologies:** Newly developing or advancing technologies that have the potential to revolutionize industries. Al Arwad Company explores the integration of emerging technologies to enhance its competitive edge.

**Operational Efficiency:** The ability to accomplish tasks and deliver products or services using the least amount of resources. Al Arwad Company aims to achieve operational efficiency through streamlined processes and resource management.

33

This dictionary provides a glimpse into the terminology relevant to Al Arwad Company and its operations.

#### 9.2 References

Al Arwad: welcome to Al Arwad Company Retrieved from ( www.arwad.org ) .



# INTERNSHIP FORM

#### To whom it May concern,

Students of the Industrial Engineering Department / Program are required to complete a compulsory internship in business firms and organizations before the end of their study period. We would like to thank you for your support to our student whose details are given below during her/his internship at your company for ...... days.



STUDENT INFORMATION	STUDI	ENT II	NEORI	MATION
---------------------	-------	--------	-------	--------

ID No:	99006428840			
Name Surname :	Feras Mohammad	Student No:	19INDE1086	
Department /Program:	Industrial Engineering	Internship No:	INDE3920	
E- Mail :	19INDE1086@isik.edu.tr	Cell Phone Number :	+905538678840	
Address :	Isik university – Sile – Istanbul - Tu	ırkey		

INTE	RNS	HIP C	OM	PANY

INTERNSHIP COMPANY						
Name:	Arwad comp	Arwad company				
Address :	Jordan – Amr	Jordan – Amman – Tlaa Al-Ali				
Production / Service Area:	Al-waha verti	Al-waha vertigo				
Phone:	+9627973323	962797332379 Fax:		+962-79-5065222		
E-Mail:	Osamaatyani	Osamaatyani@yahoo.com Web Add		https://web.facebook.com/profile.php?id=100575854 bWKwL& rdc=1& rdr		
Internship Starting Date:	06/08/2023	Ending Date:	31/08/2023	Working Days	20	
Internship Days Schedule	Sunday, M	onday, Tuesday,	Wednesday and	Thursday		
Internship Application Type:		Compulsory Internship  Voluntary Internship  On-site Internship  Online Internship				

#### COMPANY AUTHORIZED PERSON

Name Surname:	Osama Atyani			
Job and Title :	Company manager			
E- Mail:	Osamaatyani@yahoo.com	Signature /	3/	
Date:	23.07.2023	Stamp	- 1/10.04	lm l
				<b>artino</b> ic

STUDENT SIGNATURE	DEPARTMENT / PROGRAM APPROVAL	DEAN / DIRECTORATE APPROVAL	INTERNSHIP OFFICE
I hereby confirm that the information given on this form is true. I kindly request the documents required for the internship to be prepared.	Electronic approval is given.	Electronic approval is given.	Electronic approval is given.
Feras malammed			
Date: 23/07/2023	Date :	Date:	Date:

NOTE: At least 15 days before the start date of the Compulsory/Voluntary internship, 1 internship application form, employer information form, photocopy of ID, I passport-sized photograph attached to the form, and the student's notification by e-mail to the advisor responsible for the internship, It is obligatory to send an e-mail to the Faculty / Vocational School Department Secretariat. It is important to fill out the forms in the computer ......

Intern Student Name – Surname; Feras Mohammad Student Number: 19INDE1086 Department: Industrial Engineering Internship Code (mark only one)		Evaluator Name – Surname: Osama Atyani Title: Internship Evaluation Contact Information: +962795065222  Date, Stamp and Signature				
□ INDE2910 □ INI □ INDE3910 □ INI	31.	08.208	-3			
			The second beautiful	arwe	<b>10</b>	
Industrial Training Firm				AND CONSTRUCTE	24.24	
Name and Address: Arwad company Jordan, Amman, Al-waha street 23						
Starting date of training: 06 /08/2023	te of traini	ng: 31 /08 /2023	Duration: 20	) days		
Saturday shift of working*:	□ Done	V	Not done			
udent which clearly states the Saturdays  Evaluation Table	are accounted as	Poor	Satisfactory	Good	Excellent	
Creativity				Ø		
Responsibility				0	8	
Self confidence						
Individual work			0	0	9	
Work attitude		0			3	
Teamwork			0	0	9	
Communication (written and oral)		0	0	ď		
Ability to give and receive instruct	ions		0	B		
Attendance		0			9	
Overall evaluation			0	<b>S</b>		
Comments and suggestions about  Hard work to learn and I tried to show i  graduating from your	nim different depa	artment in co	ompany so that he	would know ho	w he can work after	
Would you consider employing th	is intern in the	future?		8	Yes 🗆 No	
Would you consider employing ot	her interns fro	m Işık Uni	versity next yea	r? Ø	Yes 🗆 No	

General principles of industrial training:

Duration of the industrial training:

Duration of the industrial training cannot be less than 20 work days. Sundays and public holidays are not counted as working days. Subjects, periods and duration of industrial training are set by the department/program commission.

The students are liable for preparing an "Internship Report" about the activities of internship and deliver it on time. With the report that is approved by an authorized person, "Internship Application Form" which the student has a copy of it and "Internship Assessment Form" which is filled, approved by an authorized person and put in an envelope are delivered by the intern or post directly to the department.