

**KONYA FOOD AND AGRICULTURE UNIVERSITY**

**FACULTY OF ENGINEERING AND ARCHITECTURE**

**INDUSTRIAL ENGINEERING DEPARMENT**

**IENG 3000**

**SUMMER INTERNSHIP  
REPORT**

**Name Last Name**

**ID Number**

**Performed at**

**Name of the Firm**

**Beginning and End dates**

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**Abstract**

You should provide a short (no more than 150 words) abstract in your report. This abstract should describe your internship in a few sentences: mainly stating where, what you have done and what you learned. Just a general description.

# INTRODUCTION

To use the template, create an empty version of this document (just by double clicking the dot file) and edit the text according to your internship. You should be using relevant styles defined in this template. For example you should use H1 for top-level Section headers and TEXT style for the normal text.

In the introduction section you should make a smooth beginning to the document. This section should include the following information:

* The name of the company and department where you have done your summer internship, the main focus area of the company, and your motivation for choosing this company as the place for your summer internship.
* Brief summary of the work you have done, the motivation behind it, and the significance of the work that you have done in the overall project.
* Explanation of the organization of the rest of the report.

# INTRODUCTION OF THE COMPANY

Have a section providing detailed information about the company and department where you performed your internship, its hardware/software systems and resources, its focus and project area, its organization, etc. The name, address, telephone number, email address, and information about the education of your supervisor must be given (including the name of the university and department from which he/she graduated, and the year of graduation). Additionally, you must list the names of your team members and their backgrounds. If you have worked with other interns from for example Industrial Engineering please write this information, as this can be considered as an evidence for multi-disciplinary work.

# ORGANIZATION AND GENERAL PRINCIPLES OF MANAGEMENT

## Role of IE in the Organization of the Company

Discuss the organizational structure of the company referring to the organizational chart (if it is not available, prepare it yourself). How many industrial engineers are employed in the company? For one industrial engineer, provide name, title, duties and his/her responsibilities.

Describe how the management functions (such as Planning, Organizing, Staffing, Directing, and Controlling) are performed in the company.

# MANUFACTURING AND SERVICE PROCESSES

Explain briefly the types of manufacturing processes that exist in the plant. If the company is in the service sector, explain briefly the types of service processes that exist in the company.

# ANALYSIS OF PRODUCTION SYSTEMS

## Plant Location

Which factors were taken into account when it was decided to locate the plant at the present location? Explain each of them and discuss their appropriateness. Is the company planning to add new facilities to the existing one(s)? Which factors do they consider?

## Plant Layout

What are the types of layout observed in the plant? Discuss the advantages and disadvantages of these layout types.

Draw the company layout (block plan). Explain the flows and relationships between the departments by preparing a representative from-to chart and a relation-ship chart.

Draw a detailed layout of a selected department

# QUALITY ENGINEERING

How does the company define quality? Is there any quality assurance standard applied in the company?

Who is responsible from quality management and/or relevant issues? What are the basic responsibilities?

# INFORMATION SYSTEMS

Describe the information flow between existing departments of the company. What is the information flow media (for example, do they use computers for this purpose) through the departments? Add some examples of the forms used for information flow and explain their functions?

What types of computer programs and software packages are being used? Make a classification of available computer hardware, according to departments?

# PRODUCTION PLANNING AND CONTROL SYSTEMS

## Production Environment

What type(s) of production environments (MTO: make-to-order, MTS: make-to-stock, ATO: assemble-to-order) is(are) observed in the company? Briefly explain. If the company is operating in the service sector, explain the flow of goods, services, information and money including the customers, suppliers, state, etc. Briefly explain and illustrate with a simple diagram.

## Forecasting

Explain the forecasting activities used in the company. For what sort of items forecasting is essential. Are the planning engineers satisfied with forecasting accuracy? Explain with some examples.

## Material Requirements Planning

Explain the Material Requirements Planning (MRP) activities in the company. If MRP is not applied, then explain how requirements for raw materials, sub-assembly items, components, etc. are calculated.

## Scheduling

How is scheduling of activities being done. Explain the time frame for scheduling (weekly, monthly, etc.).

If the company is operating in the service sector, then explain how jobs, tasks are assigned to workers.

## Inventory System

What types of inventories are used in the company? Why is the company holding these inventories (give reasons for each type)? If the company does not store any significant amount of inventory, explain why that is not so.

# ADDITIONAL TASKS

Below is given a set of optional tasks. Choose and perform only two of the optional tasks.

## Forecasting

Obtain past sales data of a product/service in your company and plot the data on a graph. Determine the patterns that you observe from the graph (trend, seasonality, cycles, irregular/random variations, etc.) that fits the data. Write the most suitable forecasting model for your data. Use the model and forecast for at least 5 periods ahead. Check for errors (MSE) to compare forecasts with actual sales.

## Capacity Planning

Capacity planning is the process of determining the production capacity needed by an organization to meet changing demands for its products, and of reconciling the difference and between the capacity available and the capacity required. How does the company define and measure their capacity? How the utilization and efficiency are determined? Does the company make Rough-cut and/or Detailed Capacity Plans? If yes, explain how. If no, propose methods for making capacity plans.

## Facility Location

Determine the classification (discrete/continuous, objective, distance metric …) of the location problem. Identify the critical, subjective, and objective factors related. Evaluate the current location with respect to these factors. Generate at least three alternative site locations for the company. Select and apply a technique in order to propose a location. Discuss its appropriateness.

## Scheduling

Discuss the types of performance measures (scheduling criteria) used in scheduling. Consider the operations performed on a machine/service station. Determine how they sequence jobs on this machine. Explain and provide a related Gantt chart. Which priority rules (FCFS, LCFS, SPT, DD, etc.) are used? If any dispatching rule is not used, suggest an appropriate priority rule and implement it on a set of jobs to be scheduled on the machine/service station. Show the schedule on a Gantt chart.

## Facility Layout

Determine the classification (discrete/continuous, objective, distance metric, construction/improvement, …) of the layout problem. Identify the space requirements of the departments. Develop the relation-ship chart and the flows between the departments. Select and apply a technique to obtain a proposed block plan. Justify the proposed block plan.

## ABC Analysis

Apply ABC analysis for at least 15 inventory items of the company, and give details. Estimate the parameters (holding cost, ordering or set-up cost, etc.) of EOQ models applicable to one inventory item in each class (A, B, and C). Determine the EOQ and corresponding cost for each of the three items chosen.

## Product Tree, Master Schedule and MRP

Develop a product-structure tree, an assembly-time chart, and a master schedule. Also give the material requirements plan for one component, which is being produced by the company.

## Cause-Effect Chart and Pareto Analysis

Determine a process which results with defective products or choose a product/service which has caused customer complaints. Identify the possible causes and draw a cause-effect diagram. Prepare a simple questionnaire for the employees of the company in which you ask them their opinion as to the root causes of the problematic process or service. Based on the questionnaire results, conduct a Pareto analysis to determine the most important root causes.

# CONCLUSION

# REFERENCES

# APPENDIX