

VIETNAM NATIONAL UNIVERSITY HO CHI MINH CITY  
HCM UNIVERSITY OF TECHNOLOGY  
FACULTY OF MECHANICAL ENGINEERING - MECHATRONICS DEPARTMENT



ENGINEERING INTERNSHIP REPORT

# **Air Compressor Modeling using MATLAB**

*Submitted By:*

Nguyen Quy Khoi

*Student ID:*

1852158

*Submitted To:*

Nguyen Tan Tien

*Internship Office:*

DCSELab

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# Acknowledgements

Acknowledgements should be expressed as a special thanks to staff members of industrial companies, your supervisors, your collaborator/teammates. This chapter should not be longer than 1 page.

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# Abstract

Describe relevancy of the project and its task/ target. A short description of the technical prerequisites for executing the project. The chapter is required by the company. In any case, it should not be longer than 1 page, ideally 1/2 page.

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# Chapter 1

## Several Key points

### 1.1 Morphological Box

Create a morphological box, which is a way of creative thinking in functions and sequence of work steps.

Sub functions		Solutions of the sub functions				
		1	2	3	4	5
A	Sub function 1	<b>solution A1 (1) (3)</b>	solution A2	solution A3		
B	Sub function 2	solution B1 (1) (2) (3)	solution B2 (2)	<b>solution B3 (2)</b>	solution B4	5
C	Sub function 2		solution C2 (2)	<b>solution C3 (1)</b>		solution C5

Table 1.1: A morphological box with 3 concept variants

#### Legend

(1) = thermal solution

(2) = mechanical solution

(3) = MEM solution

For each bold option, if there are many concept variants, see Table 1.3. In this example, we choose sub function B1 as the optimal solution with 3 variants. If the table does not describe fully or the sub function needs dividing into subgroups, see Table 1.2.

When calling a solution in Table 1.2, we call it position + name of the sub solution (e.g. A2 MEM 1)

Sub functions	Solutions of the sub functions		
	1	2	3
A Sub function 1	Thermal treatment	MEM treatment	
B ...		MEM 1	MEM 2

Table 1.2: A morphological box with 3 concept variants

Sub functions	Solutions of the sub functions		
	1	2	3
B Sub function 2			
Ba Type	Simple	Complex	Mixed
Bb Shape	Round	Square	Triangle
Bc Size (m)	7x2	2x2	3x5

Table 1.3: A morphological box with 3 concept variants

## 1.2 Evaluation Table

Many evaluation tables are developed in the industry (e.g VDI 2222, VDI 2225). Search for the sheet form on the internet, consult with your supervisor/customer for further information before using it.

General points to remember to make better decisions:

- Use consecutively (following one another).
- Every table should have its own acronym since turning pages is avoided.
- Simple points are related to almost other categories. Examples:  
Parallel point values: load carrying  $\uparrow \Rightarrow$  beneficial  $\uparrow \Rightarrow$  simple point  $\uparrow$   
Opposite point values: self-weight  $\uparrow \Rightarrow$  bad  $\downarrow \Rightarrow$  simple point  $\downarrow$
- Think as a user/customer, not a manufacturer.



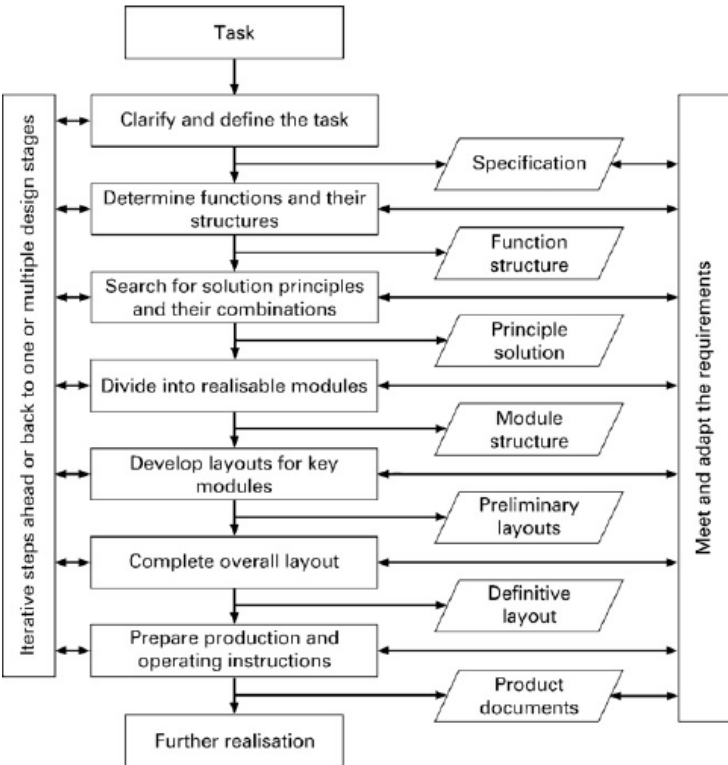


Figure 1.1: A figurative example of VDI 2222

## Chapter 2

# Summary and Conclusions

Last chapter. Provide discussions: what should be done/ has been reached; difficulties in the making of this project. Describe logical relation of the previous chapters. (optional) give advice for a reasonable continuation of the project.

During the internship, I had a chance to get acquainted with a new working environment. I have accumulated experience in industry knowledge as well as experience skills above Marghitu, 2009.

I was trained in problem solving skills in many stages, trying to complete the job in the shortest time, boldly exchanging and sharing knowledge. At the same time, it also fosters a lot of knowledge about graphic software as well as programming skills to solve the problems learned in school but professionally and saves more time Khac Liem, 1984.

Shortcomings: the skill is not mature which still takes a long time to execute; the ability to think and propose design plans is limited due to the lack of practical experience and in-depth knowledge Khac Liem, 1984.

Solution: practice more software skills, add additional specialized knowledge that is lacking.

latex

mathematics

Chezy equation

Glossary name Complicated name (thuật ngữ tiếng Việt)

# Appendix A

# Appendix

## A.1 List of Abbreviations

## A.2 List of Tables

Should be limited unless the table is out of context at that part of writing How to reference table:

- abc xyz, Table A.1.
- abc xyz, see Table A.1.
- abc xyz shows the following table. (direct referencing)
- abc xyz shows Table A.1

Pr	Parameters				Pr	Parameters				Pr	Parameters			
	$P_3$	$u_1$	$u_2$	$u_3$		$P_3$	$u_1$	$u_2$	$u_3$		$P_3$	$u_1$	$u_2$	$u_3$
1	2.5	2	2	3	31	6.5	4	2	3	61	12	3	2	4
2	2.5	2	2.24	4	32	7	3	2.24	3	62	12	4	2.24	2
3	2.5	4	2.5	4	33	7	4	2.5	4	63	12.5	3	2.5	3
4	3	2	3.15	3	34	7	3	3.15	4	64	12.5	3	3.15	4
5	3	2	3.55	3	35	7	2	3.55	3	65	12.5	4	3.55	2
6	3	4	4	2	36	7	3	4	4	66	12.5	3	4	4
7	3	2	2	3	37	7.5	4	2	2	67	12.5	4	2	3
8	3	4	2.24	3	38	7.5	4	2.24	3	68	12.5	4	2.24	2
9	3.5	3	2.5	2	39	7.5	4	2.5	3	69	13	4	2.5	4
10	3.5	4	3.15	2	40	8	4	3.15	3	70	13	3	3.15	4
11	3.5	3	3.55	2	41	8	4	3.55	2	71	13	2	3.55	2

	$P_3$	$u_1$	$u_2$	$u_3$		$P_3$	$u_1$	$u_2$	$u_3$		$P_3$	$u_1$	$u_2$	$u_3$
12	3.5	3	4	4	42	8	4	4	3	72	13	3	4	2
13	4	4	2	3	43	8	2	2	3	73	13	4	2	3
14	4	3	2.24	3	44	8.5	2	2.24	2	74	13	3	2.24	3
15	4	3	2.5	4	45	8.5	2	2.5	3	75	13	2	2.5	4
16	4	4	3.15	2	46	8.5	3	3.15	2	76	13	4	3.15	4
17	4	3	3.55	3	47	8.5	2	3.55	2	77	13.5	4	3.55	4
18	4	3	4	2	48	8.5	4	4	3	78	14	3	4	2
19	4	4	2	3	49	9.5	2	2	3	79	14	2	2	4
20	4	4	2.24	3	50	9.5	4	2.24	4	80	14	3	2.24	2
21	4.5	3	2.5	2	51	10	4	2.5	4	81	14	3	2.5	4
22	4.5	3	3.15	3	52	10	4	3.15	3	82	14.5	4	3.15	4
23	5.5	4	3.55	4	53	10.5	4	3.55	4	83	14.5	3	3.55	4
24	5.5	2	4	3	54	10.5	2	4	4	84	15	3	4	2
25	6	3	2	4	55	10.5	2	2	4	85	15	2	2	3
26	6	2	2.24	4	56	10.5	2	2.24	2	86	15	4	2.24	3
27	6	4	2.5	4	57	10.5	2	2.5	2	87	15.5	3	2.5	3
28	6	4	3.15	3	58	11	4	3.15	3	88	15.5	3	3.15	4
29	6	4	3.55	3	59	11	3	3.55	3	89	16	4	3.55	2
30	6.5	2	4	3	60	11.5	2	4	4	90	16	4	4	3

Table A.1: A long table

### A.3 List of Figures

Should be limited unless the figure is out of context at that part of writing

### A.4 Important Standards

### A.5 Bill of Materials

### A.6 Drawings (in drawing roll)

Could be included in this appendix section as figures

### A.7 Manufacturer Catalogues (in separate folder)

## **Appendix B**

# **Drawings (if you don't have drawing rolls)**

**B.1 Bill of Materials**

**B.2 Assembly drawing**

**B.3 Component drawings: 1**

**B.4 Component drawings: 2**

**B.5 Component drawings: 3**

# Glossary

**Chezy equation** Chezy equation,

$$a = b + c$$

which is commonly used. 10

**complicated name** (thuật ngữ tiếng Việt) glossary description. 10

**glossary name** glossary description. 10

**latex** Is a mark up language specially suited for scientific documents. 10

**mathematics** Mathematics is what mathematicians do. 10

# References

- Khac Liem, L. (1984). *Huong dan Thiet ke Mon hoc Nguyen Ly May*. Service Education School HCMC.
- Marghitu, D. B. (2009). *Mechanisms and Robots Analysis with MATLAB*. Dordrecht Springer.

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