DOCTOR OF BUSINESS ADMINISTRATION
DISSERTATION MANUAL

OCTOBER 2017

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Universiti Teknologi Malaysia
CHAPTER 1

INTRODUCTION

1.1 DBA Dissertation Manual

AHIBS’s DBA curriculum is designed based on thorough observation of industry/organization’s issues. DBA research focuses on solving the problems in the industry/organizations innovatively and relevance to the needs of the organization. In this manual, some basic guidelines are discussed in order to provide better understanding about the preparation of the DBA dissertation. However, the students are required to follow UTM thesis manual for detail discussion on binding, formatting, notes and footnotes, referencing style and other basic requirement.

1.2 Objectives

The objective of the DBA dissertation is to partially fulfill the requirements for the award of the degree of Doctor of Business Administration (DBA). The weightage of the research component and the course work is 50:50 where students are required to undertake 42 credits (14 courses x 3 credits) prior to start the research (40 credits). The structure of the 42 course is as follows:

- 3 courses: Research skills related
- 4 courses: Elective
- 1 course: University elective
- 6 courses: Core courses
1.3 Scope

The focus of the DBA dissertation is more on contributing to the practices rather than theory. Although, the rigor of the DBA dissertation should meet the expectation of the doctoral level, it differs from PhD thesis in several aspects. The basic differences between PhD thesis and DBA dissertation is highlighted in Table 1.1.

Table 1.1: The differences between DBA dissertation and PhD thesis

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary purpose</strong></td>
<td>Prepare students to carry out scholarly research relevant to management theory and practice. Starting point for research – literature gap</td>
<td>Prepare students to carry out research-based on professional practice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Starting point for research – business or managerial problem that is experienced by organizations.</td>
</tr>
<tr>
<td><strong>Students Profile</strong></td>
<td>Normally individuals who want to prepare themselves for a research career.</td>
<td>Normally senior managers who want to advance in their careers by learning to solve business problems through advanced critical reasoning.</td>
</tr>
<tr>
<td><strong>Foundational</strong></td>
<td>· Research theory and methods</td>
<td>· Research theory and methods</td>
</tr>
<tr>
<td><strong>preparation</strong></td>
<td>· Discipline content</td>
<td>· Discipline content</td>
</tr>
<tr>
<td><strong>Nature of report</strong></td>
<td>Research thesis addressing a research problem acknowledged as significant by the scholarly peer community</td>
<td>Doctoral dissertation addressing a practical problem, usually in the student's workplace, acknowledged as significant by scholarly and practical stakeholders</td>
</tr>
<tr>
<td><strong>What Must be There in research Proposal</strong></td>
<td>· Research problem and its importance</td>
<td>· Current situation description and problem to solve</td>
</tr>
<tr>
<td></td>
<td>· Expected significance of the work</td>
<td>· Desired outcome and its significance to key stakeholders</td>
</tr>
<tr>
<td></td>
<td>· Background research</td>
<td>· Background research</td>
</tr>
<tr>
<td></td>
<td>· Research plan and methods</td>
<td>· Research plan, Implementation plan and methods</td>
</tr>
<tr>
<td></td>
<td>· Evaluate by scholarly examiners or academician</td>
<td>· Evaluate by a panel including academician and qualified practitioners</td>
</tr>
<tr>
<td><strong>Evaluation criteria for final thesis/dissertation exercise</strong></td>
<td>· Intellectual and methodological soundness</td>
<td>· Intellectual and methodological soundness</td>
</tr>
<tr>
<td></td>
<td>· Novelty and significance of research theoretical contribution</td>
<td>· Success of and learning from project/best practices</td>
</tr>
<tr>
<td></td>
<td>· Adherence to scholarly peer community norms</td>
<td>· Adherence to intellectual and ethical norms</td>
</tr>
<tr>
<td><strong>Common forms of documentation</strong></td>
<td>PhD Thesis</td>
<td>DBA Dissertation</td>
</tr>
</tbody>
</table>
1.4 The Process Flow of DBA Journey

Being a DBA candidate, it is required to understand the whole process starting from registration to submission of the dissertation. The process flow of the DBA journey is outlined in Figure 1.1.
Figure 1.1: The process flow of the DBA journey

1. **Registration/Enrolment**
   - Plan your subject registration throughout your study period

2. **By Semester 2: Appointment of Supervisor**
   - Finished all the core courses
   - On-going development of proposal with supervision from supervisor

3. **Registration of Independent Study**
   - (can be done concurrently with course(s))

4. **Submission of Proposal for Proposal Defense**

5. **Approved Proposal: Continue Research Process**

6. **Presentation of Research Progress**
   - every semester

7. **Submission of Dissertation**

---

**Expectations**

- Capacity to conceive, plan and conduct research independently
- Practical application and suitable for journal publication

**Initial proposal of the proposed topic:**
- Approach the potential supervisor;
  1) From UTM IBS
  2) From Industry

**Course Registration for your research every semester in accordance to semester**

**Submission of progress report every semester**
CHAPTER 2

ORGANIZATION OF THE THESIS

2.1 Dissertation Status Declaration

Dissertation status declaration needs to be done using Dissertation Status Declaration form issued by Perpustakaan Sultanah Zanariah (PSZ), i.e., PSZ 19:16 (Pind. 1/07) form as showed in Appendix A. For more detail information, kindly see the UTM thesis manual.

2.2 Arrangement of Parts in a Dissertation

Students should adhere to the suggested arrangement of parts outlined in this section. More detail information is provided in Table 2.1.

Table 2.1: Arrangement of parts in a dissertation

<table>
<thead>
<tr>
<th>Section</th>
<th>SUBJECT</th>
<th>STATUS</th>
<th>EXAMPLE (APPENDIX)</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3</td>
<td>Blank paper</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.3</td>
<td>Declaration of the Status of Thesis</td>
<td>compulsory</td>
<td>A</td>
<td>without page number</td>
</tr>
<tr>
<td>1.3</td>
<td>Letter regarding status classification of thesis</td>
<td>compulsory</td>
<td>B</td>
<td>needed if classified as confidential/restricted</td>
</tr>
<tr>
<td>1.4.1</td>
<td>Supervisor’s declaration</td>
<td>compulsory</td>
<td>C1</td>
<td>without page number</td>
</tr>
<tr>
<td>1.4.2</td>
<td>Declaration on cooperation</td>
<td>compulsory</td>
<td>C2</td>
<td>without page number</td>
</tr>
<tr>
<td>1.5</td>
<td>Title page</td>
<td>compulsory</td>
<td>D</td>
<td>without page number but counted as (i)</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
<td>Status</td>
<td>Page</td>
<td>Numeral</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>--------</td>
<td>------</td>
<td>---------</td>
</tr>
<tr>
<td>1.7</td>
<td>Declaration of originality and exclusiveness</td>
<td>compulsory</td>
<td>F</td>
<td>Roman numeral (ii)</td>
</tr>
<tr>
<td>1.8</td>
<td>Dedication</td>
<td>optional</td>
<td>G</td>
<td>Roman numeric (if any)</td>
</tr>
<tr>
<td>1.9</td>
<td>Acknowledgement</td>
<td>optional</td>
<td>H</td>
<td>Roman numeric (if any)</td>
</tr>
<tr>
<td>1.10</td>
<td>Abstract (English)\nAbstrak (Bahasa Melayu)</td>
<td>compulsory</td>
<td>I, J</td>
<td>Roman numeric (if any)</td>
</tr>
<tr>
<td>1.11</td>
<td>Table of Contents</td>
<td>compulsory</td>
<td>K</td>
<td>Roman numeric</td>
</tr>
<tr>
<td>1.12</td>
<td>List of Tables</td>
<td>compulsory</td>
<td>L</td>
<td>Roman numeric</td>
</tr>
<tr>
<td>1.13</td>
<td>List of Figures</td>
<td>compulsory</td>
<td>M</td>
<td>Roman numeric</td>
</tr>
<tr>
<td>1.14</td>
<td>List of Symbols/Abbreviations/Notation/Terminology</td>
<td>compulsory</td>
<td>N</td>
<td>Roman numeric</td>
</tr>
<tr>
<td>1.15</td>
<td>List of Appendices</td>
<td>compulsory (if any)</td>
<td>O</td>
<td>Roman numeric (if any)</td>
</tr>
<tr>
<td>1.16</td>
<td>Text</td>
<td>compulsory</td>
<td>-</td>
<td>Arabic numeric starting with page 1</td>
</tr>
<tr>
<td>1.17</td>
<td>References</td>
<td>compulsory</td>
<td>-</td>
<td>Arabic numeric continue from the text</td>
</tr>
<tr>
<td>1.18</td>
<td>Appendices</td>
<td>optional</td>
<td>-</td>
<td>Arabic numeric continue from the text</td>
</tr>
</tbody>
</table>
2.3 **Dissertation Topics and Title**

The topic of the dissertation should be grounded in a problem faced by managers and organizations (industry oriented, practical oriented) and that the results of the research should make a contribution to improving existing practice (focused on solving issues faced by organizations). The starting point for a DBA research is a live business or managerial problem that is being experienced by the organizations. The DBA research should fall within a specific subject area within business and/or management such as business innovation, management/human capital, marketing/entrepreneurship, technology/economics, accounting and finance.

The dissertation title should not exceed more than 15 words. The title should not contain formulas, symbols or subscripts, Greek letters, or other non-alphabetical symbols; rather word substitutes are used.

2.4 **Abstracts**

Abstracts must be bilingual. For a dissertation written English language, the abstract must first be written in English followed by Bahasa Melayu. The abstract should not exceed 300 words and should be placed in one page. It can be written using single or one and half spacing. Example can be seen in Appendix J.

2.5 **Table of Content Page**

The table of content page should start on a new page. It should list all sections, chapters and sub-headings. The titles must be written using the same words as those written in the text. The example of a content page is provided in Appendix K.

2.6 **Other Requirements about the Dissertation Organization**

Examples of the title page (Appendix D), statement of award for the thesis (Appendix E), dedication page (Appendix F), acknowledgment (Appendix H), list of tables (Appendix L), list of figures (Appendix M), list of appendices (Appendix O), quotation in the text (Appendix P), tables in the text (Appendix Q), sample of numbering a chapter and sub-
heading in the chapter (Appendix R) and sample of a reference list using author and year system (Appendix S) are shown in Appendices.
CHAPTER 3

SIZE AND FORMAT

3.1 Paper and Size

The DBA dissertation should be printed in high quality paper. White simile 80 gram high quality A4 size papers (210 x 297) must be used.

3.2 Margin

All pages should be set with the same margin. The left margin should be 4cm (for binding purposes) and 2.5 cm for the top, right and bottom margins.

3.3 Pagination

Each page of a dissertation must be counted and numbered. Pages should be numbered consecutively. The page numbers should be printed at the top right hand corner, 1.25cm from the top edge and 2.5cm from right edge. For more detail information, kindly see UTM Thesis Manual, Chapter 2.

3.4 Maximum Limits

The minimum length of a DBA dissertation can be 40,000 words which is equivalent to 160 pages. Maximum number of pages for a dissertation is as follows:

Text only: 50,000 words (160 to 200 pages; text only - without references and appendices)
Total: 62,500 words (160 to 250 pages; total - including references and appendices)
3.5 Other Requirements Related to Size and Formatting

Detail discussion and instruction about numbering the chapters and sub-sections, typing, spacing and format, computer printed copy, lettering and drawing, binding, cover colour and writing, front cover and spine can be obtained from UTM Thesis manual, chapter 2.
CHAPTER 4

GUIDELINE OF BASIC CHAPTERS

4.1 Basic Components of a DBA Dissertation

The basic chapters of a DBA dissertation are as follows:

Chapter 1: Introduction
Chapter 2: Literature Review
Chapter 3: Methodology
Chapter 4: Analysis and Findings
Chapter 5: Discussion and Conclusion

The possible sub-headings and discussion agenda that can be considered under each chapter are shown in Table 4.1. However, the students should organize the sub-headings with the discussion and guidance of their supervisor(s).

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>Main Topics</th>
</tr>
</thead>
</table>
| Chapter 1: Introduction | · Background of the study  
· Problem Statement  
· RQs and ROs  
· Research scope  
· Research Significance  
· Definition of the study variables/terminologies  
· Organization of the dissertation |
| Chapter 2: Literature Review | · Introduction  
· Discussion on underpinning theory  
· Discussion on the study variables/phenomena/issue  
· Discussion on the overall conceptual design  
· Chapter summary |
| Chapter 3: Methodology | · Introduction  
· Research design  
· Variables and measures  
· Questionnaire design  
· Sampling design |
The problem statement in the DBA dissertation should be focused on practical or industrial-based. In line with the discussion of the problem statement, the research significance should also highlight in terms of practical or industrial. The discussion in the chapter should be made directly relevant to the problem area/statement. The discussion should be intended to further refine or justify the root cause of the problem.

In chapter 2, the discussion on variable(s) should emphasize on how the variables being embedded into the problem. Students should include previous studies on the variables/phenomenon. The structure is similar to PhD but the focus is problem-oriented or how to solve the problem.

Methodological choices should be appropriate to solve the problem or to answer research questions. The reporting of the findings should be relevant to the research problem and its structure should be similar to the PhD thesis.

The last chapter should be presented in a transparent manner. More focus should be given on managerial implications. It should highlight issues related to management practices. Also, it should display that the research has an impact on their professional practice. In addition, the practicality of the findings can be proofed through action plan that can be executed in reference to the management issue faced by the organisation.

In terms of research contribution, students should provide, (1) greater emphasis to the implications for managers and professional practice and (2) a detailed discussion on the
applicability of the findings with respect to the professional practice of business. The discussion should provide a rich argument for why and how the findings are relevant to improved business practice. Additionally, accurate conclusions should be drawn from the data analysis techniques used.
APPENDIX A
Example of Dissertation Status Validation Form

UNIVERSITI TEKNOLOGI MALAYSIA

DECLARATION OF DBA DISSERTATION AND COPYRIGHT

Author's full name : _______________________________________________________
Date of birth : ___________________________________________________________
Title : ___________________________________________________________
                                                                                             ________________________________________________
                                                                                             ________________________________________________
                                                                                             ________________________________________________
Academic Session : ____________________________

I declare that this graduate project is classified as:

☐ CONFIDENTIAL       (Contains confidential information under the Official Secret Act 1972)*
☐ RESTRICTED          (Contains restricted information as specified by the organization where research was done)
☐ OPEN ACCESS         I agree that my graduate project to be published as online open access (full text)

I acknowledged that Universiti Teknologi Malaysia reserves the right as follows:

1. The graduate project is the property of Universiti Teknologi Malaysia.
2. The library of Universiti Teknologi Malaysia has the right to make copies for the purpose of research only.
3. The library has the right to make copies of the graduate project for academic exchange

Certified by :

____________________________                     ____________________________
SIGNATURE                                SIGNATURE OF SUPERVISOR

____________________________                     ____________________________
(NEW IC NO./PASSPORT NO.)                NAME OF SUPERVISOR

Date :                     Date :

NOTES:  * If the graduate project is CONFIDENTIAL or RESTRICTED, please attach the letter from the organization with period and reasons for confidentiality or restriction.
APPENDIX B
Example of a dissertation status declaration letter

Librarian
Perpustakaan Sultanah Zanariah
UTM, Skudai
Johor

Sir,

CLASSIFICATION OF THESIS AS RESTRICTED
-TITLE AND NAME OF AUTHOR’S -

Please be informed that the above mentioned thesis entitled “TITLE” be classified as RESTRICTED for a period of three (3) years from the date of this letter. The reasons for this classification are

(i)
(ii)
(iii)

Thank you.

Sincerely yours,

NAME, ADDRESS, TELEPHONE NUMBER OF SUPERVISOR

Note: This letter should be written by the supervisor, addressed to PSZ and a copy attached to the thesis
APPENDIX C1
Sample of supervisor's declaration

“I/We* hereby declare that I/we* have read this thesis and in my/our*
opinion this thesis is sufficient in term of scope and quality for the award of the
degree of Doctor of Business Administration”

Signature : ..............................................................
Name of Supervisor I : ..............................................................
Date : ..............................................................

Signature : ..............................................................
Name of Supervisor II : ..............................................................
Date : ..............................................................

Signature : ..............................................................
Name of Supervisor III : ..............................................................
Date : ..............................................................

*Delete as necessary
APPENDIX C2
Contoh pengesahan Sekolah Pengajian Siswaah/Fakulti/Agensi Kerjasama

BAHAGIAN A - Pengesahan Kerjasama*

Adalah disahkan bahawa projek penelitian ini telah dilaksanakan melalui
kerjasama antara ________________________ dengan ________________________

Disahkan oleh:
Tandatangan : ___________________________  Tarikh : _______
Nama : ________________________________
Jawatan : ______________________________
(Cop rasmi)
* Jika penyediaan usai projek melibatkan kerjasama.

BAHAGIAN B - Ustuk Kegunaan Pejabat Sekolah Pengajian Siwaah

Tesis ini telah diperiksa dan disahkan oleh:
Nama dan Alamat Penyelidik Luar : ________________________________
   ____________________________________________________________

Nama dan Alamat Penyelidik Dalam:
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

Nama Dosen Lain (jika ada) : ________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

Disahkan oleh Timbalan Penyelidik di SPK:
Tandatangan : ___________________________  Tarikh : _______
Nama : ________________________________
APPENDIX D
Example of a title page

ON-LINE RECOGNITION OF DEVELOPING CONTROL CHART PATTERNS

ADNAN BIN HASSAN

A thesis submitted in fulfilment of the requirements for the award of the degree of
Doctor of Philosophy (Mechanical Engineering)

Faculty of Mechanical Engineering
Universiti Teknologi Malaysia

JUNE 2013
APPENDIX E
Sample of statement of awards for dissertation

1. Bachelor Degree Project Report
   A report submitted in partial fulfillment of the requirements for the award of the degree of Bachelor of

2. Master’s Project Report (By course work)
   A project report submitted in partial fulfillment of the requirements for the award of the degree of Master of ___________ (specialization)

3. Master’s Dissertation (By course work and research)
   A dissertation submitted in partial fulfillment of the requirements for the award of the degree of Master of ___________ (specialization)

4. Master’s Thesis (By research)
   A thesis submitted in fulfillment of the requirements for the award of the degree of Master of ___________ (specialization)

5. Doctor of Philosophy Thesis
   A thesis submitted in fulfillment of the requirements for the award of the degree of Doctor of Philosophy (specialization)

6. Engineering Doctorate Thesis
   A dissertation submitted in partial fulfillment of the requirements for the award of the degree of Doctor of Engineering (specialization)
APPENDIX F
Sample of a dedication page

I declare that this thesis entitled "title of the thesis" is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature    : ______________________________
Name         : ______________________________
Date         : ______________________________
APPENDIX G
Sample of a dedication page

To my beloved mother and father
APPENDIX H
Example of acknowledgement page

ACKNOWLEDGEMENT

In preparing this thesis, I was in contact with many people, researchers, academics, and practitioners. They have contributed towards my understanding and thoughts. In particular, I wish to express my sincere appreciation to my main thesis supervisor, Professor Dr. Mohd Shariff Nabi Baksh, for encouragement, guidance, critics and friendship. I am also very thankful to my co-supervisor Professor Dr. Awaluddin Mohd Shafarom and Associate Professor Dr. Hishammudin Yahyaheddin for their guidance, advices and motivation. Without their continued support and interest, this thesis would not have been the same as presented here.

I am also indebted to Universiti Teknologi Malaysia (UTM) for funding my Ph.D. study. Librarians at UTM, Cardiff University of Wales and the National University of Singapore also deserve special thanks for their assistance in supplying the relevant literatures.

My fellow postgraduate students should also be recognized for their support. My sincere appreciation also extends to all my colleagues and others who have provided assistance at various occasions. Their views and tips are useful indeed. Unfortunately, it is not possible to list all of them in this limited space. I am grateful to all my family members.
Kajian ini dilakukan bertujuan mengkaji penggunaan algoritma genetik (GA) dalam p model sistem dinamik linear dan tak linear dan membandingkan kaedah alternatif bagi pemilihan struktur model menggunakan GA. Algoritma kusa dua terkecil ortogen (OLS), satu kaedah pemilihan kecerunan digunakan sebagai bandingan bagi kaedah yang dicadangkan. Pemilihan struktur model menggunakan kaedah algoritma genetik yang disebutkan (MGA) dicadangkan dalam kajian ini bagi mengurangkan masalah konvergensi permatang dalam algoritma genetik mutakhir (SGA). Kesaran penggunaan gabungan operator MGA yang berbeza ke atas prestasi model yang terbentuk dikaji dan keberkesan serta kekurangan MGA diusahakan. Kajian simulasi dilakukan untuk membanding SGA, MGA dan OLS. Dengan menggunakan bilangan parameter dinamik yang setara kajian ini mendapati, dalam kebanyakan kes, prestasi MGA adalah lebih baik daripada SGA dalam mencapai kepenulisan yang berpotensi dan lebih berkebolehan daripada OLS dalam menentukan bilangan sebunyan yang dipilih dan ketepatan rasmi. Di samping itu, penggunaan cara tumpatan dalam MGA untuk menambah batik algoritma tersebut dicadang dan dijelaskan oleh algoritma mcmetic (MA). Hasil simulasi menunjukkan, dalam kebanyakannya kes, MA berkeupayaan menghasilkan model yang bersesuaian dan pertama dan sangatlah suai penggunaan model di samping mcmperoleh lebih dahulu dibandingkan dengan kaedah OLS, SGA dan MGA. Tambahan pula, kajian ini untuk sistem berbilang pcmboleh hubah menggunakan data eksperimental sebenar daripada dua sistem iaitu sistem pengulang-alik turbo dan reaktor teraduk berterusan menunjukkan algoritma ini boleh digunakan sebagai alternatif untuk mcmperoleh model termudah yang memadai bagi sistem tersebut.
APPENDIX J
Example of an abstract in English

ABSTRACT

The purpose of this study is to investigate the application of genetic algorithm (GA) in modelling linear and non-linear dynamic systems and develop an alternative model structure selection algorithm based on GA. Orthogonal least squares (OLS), a gradient descent method was used as the benchmark for the proposed algorithm. A model structure selection based on modified genetic algorithm (MGA) has been proposed in this study to reduce problems of premature convergence in simple GA (SGA). The effect of different combinations of MGA operators on the performance of the developed model was studied and the effectiveness and shortcomings of MGA were highlighted. Results were compared between SGA, MGA and benchmark OLS method. It was discovered that with similar number of dynamic terms, in most cases, MGA performs better than SGA in terms of exploring potential solution and outperformed the OLS algorithm in terms of selected number of terms and predictive accuracy. In addition, the use of local search with MGA for fine-tuning the algorithm was also proposed and investigated, named as mimetic algorithm (MA). Simulation results demonstrated that in most cases, MA is able to produce an adequate and parsimonious model that can satisfy the model validation tests with significant advantages over OLS, SGA and MGA methods. Furthermore, the case studies on identification of multivariable systems based on real experimental data from two systems namely a turbo alternator and a continuous stirred tank reactor showed that the proposed algorithm could be used as an alternative to adequately identify adequate and parsimonious models for those systems.
## APPENDIX K

Sample of a Table of Content Page

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DECLARATION</td>
<td>ii</td>
</tr>
<tr>
<td></td>
<td>DEDICATION</td>
<td>iii</td>
</tr>
<tr>
<td></td>
<td>ACKNOWLEDGEMENT</td>
<td>iv</td>
</tr>
<tr>
<td></td>
<td>ABSTRACT</td>
<td>v</td>
</tr>
<tr>
<td></td>
<td>ABSTRAK</td>
<td>vi</td>
</tr>
<tr>
<td></td>
<td>TABLE OF CONTENTS</td>
<td>vili</td>
</tr>
<tr>
<td></td>
<td>LIST OF TABLES</td>
<td>xii</td>
</tr>
<tr>
<td></td>
<td>LIST OF FIGURES</td>
<td>xiv</td>
</tr>
<tr>
<td></td>
<td>LIST OF ABBREVIATIONS</td>
<td>xiv</td>
</tr>
<tr>
<td></td>
<td>LIST OF SYMBOLS</td>
<td>xvi</td>
</tr>
</tbody>
</table>

1. ORGANISATION OF THE THESIS 1
   1.1 Definition of a Thesis 1
   1.2 Organisation of the Thesis 1
   1.3 Thesis Status Declaration 1
   1.4 Declaration 3
      1.4.1 Supervisor’s Declaration 4

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   4.1 General guideline 33
   4.2 Consistency 33

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Example of a List of Tables

## LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE NO.</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>The role of statistical quality engineering tools and methodologies</td>
</tr>
<tr>
<td>1.2</td>
<td>Basic ANN models used for control chart pattern recognition</td>
</tr>
<tr>
<td>1.3</td>
<td>General design strategies/structures for CCPR</td>
</tr>
<tr>
<td>1.4</td>
<td>The overall research plan</td>
</tr>
<tr>
<td>2.1</td>
<td>Parameters for simulating individual process variation data</td>
</tr>
<tr>
<td>2.2</td>
<td>Description of performance measures</td>
</tr>
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<td>2.3</td>
<td>Targeted recogniser outputs</td>
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<td>3.1</td>
<td>Design matrix and results for the preliminary feature screening</td>
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<td>3.2</td>
<td>Regression analysis for the results of preliminary feature screening</td>
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<td>3.3</td>
<td>ANOVA for the results of preliminary feature screening</td>
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<td>3.4</td>
<td>Tentative significant main effects and two-factor interactions</td>
</tr>
<tr>
<td>3.5</td>
<td>Estimated effects and regression coefficients for the recogniser's performance (reduced model)</td>
</tr>
<tr>
<td>3.6</td>
<td>ANOVA for the recogniser's performance (reduced model)</td>
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APPENDIX M
Example of a List of Figures

<table>
<thead>
<tr>
<th>FIGURE NO.</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
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<tbody>
<tr>
<td>1.1</td>
<td>Trends leading to the problem</td>
<td>2</td>
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<tr>
<td>1.2</td>
<td>Design and development phases of the proposed scheme</td>
<td>7</td>
</tr>
<tr>
<td>1.3</td>
<td>Summary of the research contributions</td>
<td>10</td>
</tr>
<tr>
<td>1.4</td>
<td>Organisation of the thesis</td>
<td>11</td>
</tr>
<tr>
<td>2.1</td>
<td>Chance and assignable causes of process variation</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>(Montgomery, 1996a)</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Classification of statistical quality engineering tools</td>
<td>15</td>
</tr>
<tr>
<td>2.3</td>
<td>Continuous variability reduction using SPC chart (Revelle and Harrington, 1992)</td>
<td>19</td>
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<td>2.4</td>
<td>Classification of research areas in SPC</td>
<td>20</td>
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<tr>
<td>2.5</td>
<td>Advances in process variation monitoring and recognition using SPC charting</td>
<td>25</td>
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<tr>
<td>2.6</td>
<td>Nelson's runs rules (Nelson, 1984)</td>
<td>26</td>
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<td>2.7</td>
<td>Typical fully developed patterns on Shewhart control chart (Cheng, 1989)</td>
<td>28</td>
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APPENDIX N
Example of a List of Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tbody>
<tr>
<td>D, d</td>
<td>Diameter</td>
</tr>
<tr>
<td>F</td>
<td>Force</td>
</tr>
<tr>
<td>g</td>
<td>Gravity = 9.81 m/s</td>
</tr>
<tr>
<td>I</td>
<td>Moment of inertia</td>
</tr>
<tr>
<td>l</td>
<td>Length</td>
</tr>
<tr>
<td>m</td>
<td>Mass</td>
</tr>
<tr>
<td>N</td>
<td>Rotational velocity</td>
</tr>
<tr>
<td>p</td>
<td>Pressure</td>
</tr>
<tr>
<td>Q</td>
<td>Volumetric flow-rate</td>
</tr>
<tr>
<td>r</td>
<td>Radius</td>
</tr>
<tr>
<td>T</td>
<td>Torque</td>
</tr>
<tr>
<td>Re</td>
<td>Reynold number</td>
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<tr>
<td>v</td>
<td>Velocity</td>
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<tr>
<td>w</td>
<td>Angular velocity</td>
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<td>x</td>
<td>Displacement</td>
</tr>
<tr>
<td>z</td>
<td>Height</td>
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<tr>
<td>θ</td>
<td>Angle</td>
</tr>
<tr>
<td>ρ</td>
<td>Density</td>
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APPENDIX O
Example of a List of Appendices

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<th>APPENDIX</th>
<th>TITLE</th>
<th>PAGE</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Examples of possible assignable causes of unnatural control chart patterns</td>
<td>253</td>
</tr>
<tr>
<td>B</td>
<td>Models for generating the control chart patterns (data streams)</td>
<td>254</td>
</tr>
<tr>
<td>C1</td>
<td>Mathematical expressions for the statistical features</td>
<td>256</td>
</tr>
<tr>
<td>C2</td>
<td>Minimum and maximum feature values</td>
<td>259</td>
</tr>
<tr>
<td>C3</td>
<td>Analysis of results for experiments to revise the parameter setting</td>
<td>260</td>
</tr>
</tbody>
</table>
After deliberating on doctoral education in Australia in the 1990s, one observer in Australia writes:

The lack of any significant formal course work within our Ph.D. and master degrees by research has continued for three decades. The focus of our Ph.D. research type degrees continues to be the research project, and this is almost the only medium by which education is accomplished.

(Stanko, 1984:171)
### Table 4.3: Comparison of experimental and computer simulation results

<table>
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<tr>
<th>Distance Ratio</th>
<th>Experiment (mean value)</th>
<th>Computer Simulation (mean value)</th>
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<td>0.25</td>
<td>0.137</td>
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<tr>
<td>0.250</td>
<td>0.46</td>
<td>0.500</td>
</tr>
<tr>
<td>0.375</td>
<td>0.63</td>
<td>0.738</td>
</tr>
<tr>
<td>0.500</td>
<td>0.75</td>
<td>0.661</td>
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<tr>
<td>0.625</td>
<td>0.83</td>
<td>0.930</td>
</tr>
<tr>
<td>0.750</td>
<td>0.88</td>
<td>0.981</td>
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<tr>
<td>0.875</td>
<td>0.93</td>
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<tr>
<td>1.000</td>
<td>1.00</td>
<td>1.000</td>
</tr>
</tbody>
</table>
APPENDIX R

Sample of numbering a chapter and sub-heading in the chapter

2.5 cm

CHAPTER 2

4 line spacing

X

TITLE OF THE CHAPTER

X

4 cm

1.27 cm (0.5 inch)

Text should begin at this position and continue to the end of the left margin.

Text must be typed using 1.5 spacing.

4 line spacing

2.1 Sub-Heading

3 line spacing

Text should begin at this position and continue to the end of the left margin.

Text must be typed using 1.5 spacing spacing.

4 line spacing

2.1.1 Sub-sub-heading

2 line spacing

Text should begin at this position and continue to the end of the left margin.

Text must be typed using 1.5 spacing spacing.
APPENDIX S
Sample of a reference list using author and year system


Note: Arranged alphabetically according to author’s name.