

# **GUIDELINES FOR PREPARATION OF B.E. (Electrical) THESIS**

## **1. GENERAL**

The thesis should be divided into three portions:

### Portion 1

Main body (text) of the thesis consisting of various chapters, sections and sub-sections, including the chapter of Conclusions and Suggestions, Tables, Figures, Charts and References.

### Portion 2

Preliminary pages placed before the text.

### Portion 3

Appendices placed after the text.

## **2. SIZE AND QUALITY OF PAPER**

The thesis should be prepared on standard A4 size (210 mm x 297 mm) good quality white paper (at least 80 gm). The same paper should also be used for Figures, Tables, Charts etc. and for mounting Photographs if any.

## **3. SPELLINGS**

Either the American or British English spellings should be used throughout the thesis.

#### **4. TYPING AND PRINTING**

- i. The entire thesis must be computer-typed and printed through laser jet printer without any borderlines, logos, insignia, monograms etc.
- ii. The main text of the thesis must be typed double-spaced with font Times New Roman, size 12.
- iii. Each chapter must start on a new page and be typed continuously with sections and sub-sections on successive pages.
- iv. The chapter number and heading should be typed centered on the page in bold capitals and underlined with font size 14. The chapter heading should be placed below the chapter number. The chapter number should be in Arabic numerals, e.g.,

### **CHAPTER 4**

#### **DISCUSSION OF EXPERIMENTAL RESULTS**

- v. The section number and heading must be typed from the left margin in capitals bold letters without under. The section number must consist of the chapter number followed by a number, both in Arabic numerals, e.g.

#### **4.1 TEST RESULTS**

- vi. The sub-section numbers and headings must be typed from the left margin in bold lower case characters with the first character of the first word in capital without underlining. The sub-section must consist of the chapter number followed by section number and one additional number representing the subsection, all in Arabic numerals, e.g.,

#### **4.1.1 Frequency results**

vii. Any further sub-section numbering, if needed, must be done with additional Arabic numerals without bold letters, e.g.,

##### 4.1.1.2 Comparison of frequency results

### **5. MARGINS**

Margins of 1.5 inch must be left at the top and left side, and 1 inch on the right side and bottom of the paper.

### **6. TABLES**

i. Each table must be typed following the place where it is referred first, preferably on the same page, or if it cannot be accommodated in the remaining space on the same page then on the following page, with single, one-and-a-half or double line spacing as is found convenient to accommodate the table on one page within the specified margins.

ii. A long table which cannot be accommodated on one page, even with single line spacing and *I* or reduced to an easily legible size, may be continued on the next page under the same table number with proper indication at the bottom of the page, e.g., "continued on the next page".

iii. The heading of the table must be in bold lower case letters with the first character of the first word in capital without underlining. The number and heading of the table should be typed above the table itself.

iv. All the tables belonging to each chapter must be numbered in the same way as the sections of the chapter, the first number indicating the chapter number and the second the table number in sequence, both in Arabic numerals, e.g.,

#### **Table 4.1: Comparison of theoretical and experimental results**

- v. If any table is referred on a page other than that where it is placed, it should be referred with its number and the page where it is placed, e.g., Table 4. I on p. 36. All tables must be numbered consecutively as they are referred to in the text.
- vi. Scanned or photocopied tables are not accepted.

#### **7. FIGURES**

- i. Each figure must be drawn and placed within the specified margins following the place where it is referred first, preferably on the same page, or if it cannot be accommodated in the remaining space on the same page then on the following page.
- ii. The number and caption of each figure should be typed under it with bold letters in the same way as the headings of tables described above, e.g.,

#### **Figure. 4.1: Single phase cycloconverter**

- iii. If any figure is referred on a page other than that where it is placed, it should be referred with its number and the page where it is placed, e.g., Figure 4. 1 on p.43. Please refer to tables capitalization and unabbreviated (e.g., **“As shown in Figure 2.1”**, and not **“Fig. 2.1”** or **“figure 2.1”**).

## **10. EQUATIONS**

All equations belonging to a chapter in the text should be numbered in the same way as the figures and tables. Each equation should start on a separate line with a larger than the normal spacing between the equation and the text above and below it, e.g.,

$$Ax + By = C \qquad (4.1)$$

The equation should be referred to in the text as Eq. (4.1)

The equation should be written in equation editor. The font size should be 12 in Times New Roman

## **11. PAGINATION OF TEXT**

The pages in the text should be numbered in Arabic numerals, consecutively, starting from the page where the first chapter begins. The starting page of each chapter should have the page number printed centrally at bottom of the page. All the other pages should have page numbers typed at the top right corner.

## **12. PRELIMINARY PAGES**

The following pages are to be placed in the order given below before the text of the thesis. These pages should be numbered in lower Roman numerals, consecutively, starting (i) from the title page and the numbers should be placed centrally at bottom of each page.

### **i. Title Page**

The title page should describe the exact title of the thesis, full name of the candidates, the statement "submitted in partial fulfillment of the requirement for the degree", field

of study, concerned department / institute, faculty and the month and year of approval.

A specimen of the title page is given in Appendix 1.

## **ii. Dedication Page**

A specimen of this page is given in Appendix 2.

## **iii. Certificate Page**

A specimen of the certificate page is given in Appendix 3.

## **iv. Acknowledgments**

A brief acknowledgment, in just one page, only to those persons and organizations who have assisted the candidate in his /her thesis work, or provided relevant data / information / laboratory or research facilities and tools etc. should be given on this page.

## **v. Table of Contents**

It should contain the numbers and headings of all the preliminary pages following the Table of Contents, chapters, sections and subsections of the text, including references and appendices, described consecutively, and should indicate the page where the item starts. It should be typed with **single line spacing**, and with the same font and size of both the capital and lower case characters / letters as followed in the text of the thesis.

A specimen of the Table of Contents page is given in Appendix 4.

## **vii. List of Notations**

All standard notations in English or Greek characters appearing frequently in the text should be described in the list of notations in alphabetical order with the notations in

capitals preceding those in lower case characters. All other notations appearing only once in the text need not be given in this list but should be defined at the place where they appear in the text. This list should be typed with single line spacing. A specimen of this list is given in Appendix 5.

#### **vii. List of Abbreviations**

This list should contain all the abbreviations used in the thesis and should be typed with **single line spacing**. The abbreviations must be listed in the alphabetical order. A specimen of this list is given in Appendix 6.

#### **viii. List of Tables**

The number and heading of each table, including the page number where it appears in the text, should be provided, consecutively and chapter-wise, in this list and should be typed with single line spacing.

#### **ix. List of Figures**

The number and caption of each figure, including the page number where it is located in the text should be provided, consecutively and chapter-wise, in this list and should be typed with single line spacing.

#### **x. List of Photographs / Plates**

The number and caption of each photograph / plate, including the page number where it is located in the text, should be provided, consecutively and chapter-wise, in this list and should be typed with single line spacing.

## **xi. List of Appendices**

The number and title of each appendix including the page number where it is located should be provided, consecutively, in this list and should be typed with single line spacing.

## **13. REFERENCES**

i. All the references quoted in the entire thesis must be placed at the end of the text in order of their first appearance in the text. The publications should be referred in the text by numbers in square brackets, e.g [1]. Or [1-3].

**Do not use individual sets of square brackets, e.g. [1], [3], [6]–[10].**

The examples of the referrals are given below:

### **Research journal articles:**

- [1] Mahar MA, Larik AS., Shah AA, “Impacts on power factor of ac voltage controllers under non-sinusoidal conditions”, Mehran University Research Journal of Engineering and Technology, Volume. 31, No. 2, pp. 297 – 300, Jamshoro, Pakistan April, 2012.

### **Books:**

- [2] Rashid MH. Power Electronics: Circuits, Devices and Applications, 3rd edition, Pearson Education, India, pp. 250-270, 2003.

### **Thesis:**

- [3] Ahmed M. “Sliding mode control for switched mode power supplies”, PhD, Lappeenranta University of Technology, Finland, 2004.

### **Conference proceedings:**



- [4] Van Wyk J.D, “Power electronics technology at the dawn of a new century-past achievements and future expectations”, 3<sup>rd</sup> Power Electronics and Motion Control Conference, 15-18 August 2000; Beijing, China. pp. 9-20.

#### **14. SUBMISSION/ BINDING OF THESIS**

- i The student will submit two hard copies of thesis book and the scanning report of the thesis to the thesis coordinator of the Electrical Engineering Department.
- ii If the scanning report has similarity index less than or equal to 19 % and no any single source has a similarity index greater than or equal to 5 % , the thesis will be accepted for viva voce examination.
- iii The thesis should be hard bound in black colour as per format as given in Appendix 7.
- iv The student also submit softcopy of the thesis in word and Pdf.

## Appendix 1

# **SPEED CONTROL OF D.C.SHUNT MOTOR BY USING PROGRAMMABLE LOGIC CONTROLLER**

A thesis submitted by

YAQOOB AHMED MALIK (Group Leader)	11EL84
HUAIB -UR- RAHMAN KHUHRO (AGL)	11EL123
AISAL DIL SHAHID GUJJAR	11EL139
EESHAN HUSSAIN SOOMRO	11EL150
EESHAN QAMAR ABBASI	11EL125
AHSAN SHAIKH	11EL130

In partial fulfillment of the requirement for the degree of

**Bachelor of Engineering**

in

Electrical Engineering

Department of Electrical Engineering

Faculty of Electrical, Electronics & Computer Systems Engineering

**Mehran University of Engineering and Technology**

**Jamshoro**

January 2015

## **APPENDIX 2**

Dedicated to my parents.

## APPENDIX 2

### Alternative

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

فَمَا أُوتِیْتُمْ مِنْ شَیْءٍ فَمَتَاعُ الْحَیَاةِ الدُّنْیَا وَ  
مَا عِنْدَ اللّٰهِ خَیْرٌ وَأَبْقَى لِلَّذِیْنَ آمَنُوا وَعَلَىٰ  
رَبِّهِمْ یَتَوَكَّلُونَ

Now whatever ye have been given is but a passing comfort for the life of the world, and that which Allah hath is better and more lasting for those who believe and put their trust in their Lord:

Quraan, Ch. 25, Sura 42, Ayah 36.

### APPENDIX 3

#### MEHRAN UNIVERSITY OF ENGINEERING & TECHNOLOGY

#### JAMSHORO

This thesis, written by following students under the direction of his supervisor, and approved by the members of the thesis committee, has been presented to and accepted by the Chairman, Department of Electrical Engineering, in partial fulfillment of the requirements of the degree of Bachelor of Electrical Engineering.

YAQOOB AHMED MALIK (Group Leader)	11EL84
HUAIB -UR- RAHMAN KHUHRO (AGL)	11EL123
AISAL DIL SHAHID GUJJAR	11EL139
EESHAN HUSSAIN SOOMRO	11EL150
EESHAN QAMAR ABBASI	11EL125
AHSAN SHAIKH	11EL130

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Prof. Dr. Abdul Sattar Iarik  
(Supervisor)

---

Prof. Dr. Mukhtiar Ahmed Mahar  
(Co – Supervisor)

---

(Internal Examiner)

---

(Chairman)

Date: \_\_\_\_\_

## Appendix 4

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## APPENDIX 5

### LIST OF NOTATIONS

C	=	Capacitance
R	=	Resistance
I	=	Current
F	=	Frequency
T <sub>d</sub>	=	Driving torque.
	=	Ohm
μ	=	Micro
	=	Angular velocity
	=	Firing angle
	=	Conduction angle

## **APPENDIX 6**

### **LIST OF ABBREVIATIONS**

AC	=	Alternating Current
DC	=	Direct Current
kVAR	=	Kilo Volt Ampere Reactive
kW	=	Kilo Watt
kWh	=	Kilo Watt HOUR
MOSFET	=	Metal Oxide Semiconductor Field Effect Transistor
MVA	=	Mega Volt Ampere
RMS	=	Root Mean Square
SCR	=	Silicon-Controlled Rectifier
UPS	=	Uninterruptible Power Supplies
MUET	=	Mehran University of Engineering and Technology
WAPDA	=	Water and Power Development Authority



APPENDIX 7 (Front cover)

**SPEED CONTROL OF D.C.SHUNT MOTOR BY USING  
PROGRAMMABLE LOGIC CONTROLLER**



A thesis submitted by

YAQOOB AHMED MALIK	11EL84
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AHSAN SHAIKH	11EL130

**Supervised by: Prof. Dr. Abdul Sattar Iarik**

**Co-supervised By: Prof. Dr. Mukhtiar Ahmed Mahar**

In partial fulfillment of the requirement for the degree of Bachelor of Electrical  
Engineering

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**MEHRAN UNIVERSITY OF ENGINEERING AND TECHNOLOGY**

**JAMSHORO**

January 2015

**APPENDIX 8 (Edge)**

**11EL**

**SPEED CONTROL OF D.C. SHUNT MOTOR BY USING PROGRAMMABLE LOGIC CONTROLLER**

**2015**