GUIDELINES

FOR THE PREPARATION OF B.E. / M. Tech. PROJECT REPORT.

DEPARTMENT

OF

INFORMATION & COMMUNICATION

TECHNOLOGY

MANIPAL INSTITUTE OF TECHNOLOGY,
(A Constituent Institute of Manipal University)

MANIPAL - 576 104, Karnataka, India.

SYNOPSIS

The arrangement of the parts of the synopsis of the M.Tech project thesis

1.	**Cover Page**	A sample sheet is enclosed (APPENDIX – A)
2.	**Title**	Should be as short as possible and accurate.
3.	**Introduction**	Outline briefly the technological / engineering / scientific / socio-economic relevance or significance of the research problem identified.
4.	**Motivation**	Trace to the point, the developments in the area, to emphasize the current status and importance of the research problem identified.
5.	**Objective(s) and scope**	State clearly the questions for which answers are sought through this research. Define the conceptual, analytical, experimental and / or methodological boundaries within which the exercise has been carried out.
6.	**Description of the project work**	Give brief, but sufficient, details regarding: (a) The research problem(s), (b) Solution methodologies and (c) Interpretation of the results / output.
7.	**Conclusions / Limitations**	Highlight major (and not all) conclusions / limitations
8.	**References**	List them according to the given format. All these must have been referred to in the Synopsis write-up.
9.	**Tables and Figures**	All of these must be captioned, serially numbered and referred to in the write-up. "Thesis Guidelines" format must be used.
10.	**The Style of Preparation**	The fonts, chapter no., margins, section and subsection no., equation no., Figures, Tables etc., must be as in the case of the thesis. The Synopsis must be presented within a maximum of 10 pages (5 sheets back to back), excluding the cover page.

Appendix - A

SYNOPSIS OF

NETWORK SECURITY PROTOCOL IMPLEMENTATION

A thesis to be submitted

to

MANIPAL UNIVERSITY

For Partial Fulfillment of the Requirement for the Award of the Degree

of

MASTER OF TECHNOLOGY

in

NETWORK ENGINEERING

by

VITTAL DAS PARABHU.
Reg. No. 4MI99LBE08
Final Year M.Tech.

Under the Guidance of

Mr. BALACHANDRA
Sr.Lecturer, Department of Information & Communication Technology

DEPARTMENT OF INFORMATION & COMMUNICATION TECHNOLOGY

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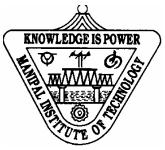

MAY 2007

The arrangement in parts of B.E. / M.Tech. project report is as follows:

1. **COVER PAGE**
2. **INSIDE COVER PAGE**
3. **QUOTATIONS (if any)**
4. **DEDICATION PAGE (if any)**
5. **CERTIFICATE(S)**
6. **ACKNOWLEDGEMENTS**
7. **ABSTRACT**
8. **TABLE OF CONTENTS**
9. **LIST OF TABLES**
10. **LIST OF FIGURES**
11. **ABBREVIATIONS (if any)**
12. **NOTATIONS (if any)**
13. **CHAPTERS**
14. **REFERENCES**

The formats for various headings are given below.

1.	**THE COVER PAGE**	The fonts and locations of various items on this page should be exactly as shown in Annexure-1A (for BE) and Annexure-1B (for M.Tech).
2.	**INSIDE COVER PAGE**	Same as the cover page
3.	**QUOTATIONS:**	This should not exceed one page
4.	**DEDICATION PAGE**	This should not exceed one page.
5.	**CERTIFICATE(S)**	The fonts and locations of the various items on the certificate should be exactly as shown in Annexure-2A (for BE) and Annexure-2B (for M.Tech). M.Tech students doing their project in industry / outside-organisation must also submit a certificate from the concerned authority.
6.	**ACKNOWLEDGEMENTS**	This should not exceed two pages.
7.	**ABSTRACT**	This should not exceed two pages (about 600 words) and should contain not more than 6 key words. See Annexure-3.
8.	**TABLE OF CONTENTS**	See Annexure-4.
9.	**LIST OF TABLES**	See Annexure-5.
10.	**LIST OF FIGURES**	Same format as in list of Tables.
11.	**ABBREVIATIONS**	See Annexure-6.
12.	**NOTATION**	See Annexure-7.
13.	**CHAPTERS**	See Annexure-8 (and 9)
14.	**REFERENCES**	References should be complete in all respects. Indicative examples are provided in Annexure-10

STYLE NOTES FOR PROJECT REPORT PRODUCTION

1. PAPER

- Use A4 (210 mm X 297 mm) bond un-ruled paper (80 gsm) for all copies submitted. Use one side of the page only for all printed / typed matter.

2. NUMBERING

a) Pages

- Every page in the Project Report except the Title page must be accounted for.
- The page numbering, starting from acknowledgements and till the beginning of the introductory Chapter should be printed in small Roman numbers, i.e. i. ii. iii. iv ……..
- All printed page numbers should be located at the bottom center of the page, 17 mm (2/3") from the bottom edge, using normal print.

b) Chapters

- Use only Arabic numerals. Chapter numbering should be centered on the top of the page using large bold print.
- Example: **CHAPTER 1**

c) Sections

- Use only Arabic numerals with decimals. Section numbering should be left justified using bold print.
- Example: **1.1, 1.2, 1.3,** etc.

d) Subsections

- Use only Arabic numerals with two decimals. Subsection numbering should be left justified using bold print.
- Example: **1.1.1, 1.1.2, 1.1.3**, etc.
- NOTE: Sub- section levels beyond the third level (e.g. 1.2.1.1, 3.2.1.3, etc.) are not recommended.

e) Equation(s) / Formula (e)

- Use only Arabic numerals with single decimal. Equation numbers should be right justified using normal print. Mathematical symbols should be printed in ***italics.***

- Format: **(<Chapter number> . <Equation serial number>)**

- Examples: (Please note that the equation numbers are flush right in normal print).

$$F(u,v) = \frac{1}{MN} \sum_{x=0}^{M-1} \sum_{y=0}^{N-1} f(x,y)\, e^{\left[-j2\pi\left(\frac{ux}{M}+\frac{vy}{N}\right)\right]} \tag{5.1}$$

for, $u = 0, 1, 2 \ldots\ldots M-1$ and $v = 0, 1, 2 \ldots\ldots N-1$.

$$TP = \left\{ \sum_{u=-\frac{M}{2}}^{\frac{M}{2}} \sum_{v=-\frac{N}{2}}^{\frac{N}{2}} \left| F(u,v) \right|^2 \right\} - \left| F(0,0) \right|^2 . \tag{5.2}$$

$$D_0 = \begin{cases} \dfrac{M}{4} & \text{if } N \geq M \\ \dfrac{N}{4} & \text{if } N < M , \end{cases} \tag{5.3}$$

$$D(u,v) = \sqrt{u^2 + v^2} . \tag{5.4}$$

$$PR = \left(\frac{HFP}{TP} \right) \times 100 \tag{5.5}$$

f) References

- Use only Arabic numerals. Serial numbering. Alphabetical order of surname or last name of first author.

- Two or more references by same author(s) in the same year should be indicated by small – case alphabets in italics.

3. TEXT

a) Colour: Black print

b) Font:

Regular text	Times Roman 12 pts. and normal print
CHAPTER HEADINGS	Times Roman 15 pts. and bold print and all capitals.
SECTION HEADINGS	Times Roman 12 pts. and bold print and capitals.
Subsection Headings	Times Roman 12 pts., bold print and leading capitals, i.e. only first letter in each word to be in capital.
Special Text	Italics / Superscript / Subscript / Special symbols etc., as per necessity. Special text may include footnotes, endnotes, physical or chemical symbols, mathematical notations, etc.
References	Same font as regular text. Serial number and all authors' names to be in bold print. Journal names and book titles in italics. For format see Annexure 10

c) Spacing:

- Use **double spacing** between the lines.
- Use **triple spacing** between paragraphs.
- All paragraphs in the project report should be left justified completely, from the first line to the last line.
- Use **double spacing** between the regular text and quotations.

- Provide **three spaces** between:

    1) Chapter title and first sentence of a Chapter.
    2) Last line of a section / sub-section and the title of the next section / sub-section.
    3) Paragraphs.

- Use **single spacing** between:

    1) In footnotes and endnotes for text.
    2) In explanatory notes for tables and figures.
    3) In text corresponding to bullets, listings, and quotations in the main body of the project report.

- Use **single space** in references and **double space** between references.

d) Justification

- The text should be **fully justified.**

- Hyphenation should be avoided as far as possible.

- Text corresponding to bullets and listings should be intended.

- Quotations from other research work must be indented on the left and the right, if they are longer than two lines. Shorter quotations can be included as part of the regular text.

e) Widows and Orphans

- At the bottom of a page, a paragraph should have at least two lines. Similarly at the top of a page, a paragraph should end with at least two lines

4. MARGINS

- The margin for the regular text are as follows:

LEFT	**31.7 mm (1.25”)**
RIGHT	**31.7 mm (1.25”)**
TOP	**25.4 mm (1.00”)**
BOTTOM	**17.0 mm (0.67”)**

- Please note that the bottom of the page numbers should be 17.0 mm above the bottom edge of the numbered pages.

5. TABLES

- A sample of Table is provided in Annexure-9.
- All Tables should have sharp lines, drawn in black ink, to separate rows/columns as and when necessary.
- Tables should follow immediately after they are referred to for the first time in the text. Splitting of paragraphs, including Tables on a page, should be avoided. Provide three spaces on the top and the bottom of all Tables to separate them from the regular text, whenever applicable.
- The last line of the title of any Table should be 10 mm to 15 mm above the top-most horizontal line of the Table, and the title should be centered with respect to the Table. The titles must be in the same font as the regular text and should be single- spaced. The title format is given below:
- Whenever a Table exceeds one page, present the full title of the Table on the first page and in the following pages provide the Table number and state "(contd.)" after it. Example: Table 5.7 (contd.)
- Whenever explanatory notes are used for clarifying any information presented inside the Tables, print them after leaving a single space immediately below the Tables.
- All Tables in landscape format must be placed such that their top portions are near the binding of the project report and their bottom portions near the outer edge.
- Table<blank><chapter number>.<serial number><left indent><table title>

6. FIGURES

- Sample of a Figure is provided in Annexure-9.
- All Figures, drawings, and graphs should be drawn in black ink with sharp lines and adequate contrast between different plots if more than one plot is present in the same graph.
- Figures should follow immediately after they are referred to for the first time in the text. Splitting of paragraphs, for including Figures on a page, should be avoided. Provide three spaces on the top and bottom of all figures to separate them from the regular text, wherever applicable.
- The first line of the title for Figures, drawings, graphs and photos should be between 10 mm and 15 mm below the bottom and they should be centered

with respect to the Figure. The titles must be in the same font as the regular text and should be **Single spaced**. The title format is given below:

- Fig.<blank><Chapter number>.<serial number><left indent><Figure title>
- Example: Fig. 4.23
- Whenever a Figure exceeds one page (as in the case of large flow charts for computer programs) present the full title of the figure on the first page and in the following pages provide the figure number and state "(contd.) after it.
- Example: Fig. 4.23 (contd.)
- When there are many plots in a single graph or Figure, the lettering, labeling or numbering of each plot for its identification should be of a size such that even after size reduction in the project report, the identification should be clearly legible.
- All Figures in landscape format must be placed such that their top portions are near the binding of the project report and their bottom portions near the outer edge.

7. PHOTOS

- Use colour photos only if they are necessary. Remember that the project report may have to be photocopied. In case colour photos are used, all copies of the project report must contain only colour photos.
- Each photo should be numbered and referred to as a Figure. Photo titles should be similar to those provided for Figures.

8. SUBMISSION

a) BE Project Report

- Total number of copies to be submitted at the department office: **3** (one copy each for guide, dept. and library). Students can have their individual copies.
- A copy of the cover page and the abstract must also be submitted to the dept.

b) M.Tech. Thesis

- Total number of copies to be submitted at the department office: **4** (3 copies to the university and one for the dept). Students can have their individual copies.
- A copy of the cover page and the abstract must also be submitted to the dept.

Annexure – 1A

CLASSIFICATION OF CARDIAC ABNORMALITIES USING NEURAL NETWORKS AND FUZZY LOGIC

A project report submitted

to

MANIPAL UNIVERSITY

For Partial Fulfillment of the Requirement for the Award of the Degree

of

BACHELOR OF ENGINEERING

in

INFORMATION TECHNOLOGY

by

MANJUNATH S. GURIKAR
RITHESH KINI
SANDEEP KAMATH
SOMANATH H. YADARANGI

Under the Guidance of

Mr. KESHAVA MURTHY B.N
Sr.Lecturer, Department of Information & Communication Technology

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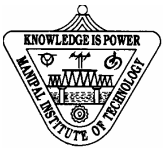

MAY 2007

Annexure – 1B

PERFORMANCE OF ERROR CORRECTING CODES IN THE TRANSMISSION OF IMAGES

A thesis submitted

to

MANIPAL UNIVERSITY

For Partial Fulfillment of the Requirement for the Award of the Degree

of

MASTER OF TECHNOLOGY

in

NETWORK ENGINEERING

by

MANSOOR ALAM
Reg. No. 4MI99LBE04
Final Year M.Tech.

Under the Guidance of

Dr. MANOHARA PAI M.M.
Professor, Department of Information & Communication Technology

DEPARTMENT OF INFORMATION & COMMUNICATION TECHNOLOGY

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MAY 2007

Annexure – 2A

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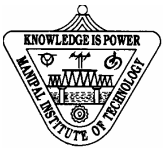

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CERTIFICATE

This is to certify that the project work titled **"DIGITAL STEGANOGRAPHY FOR INFORMATION EXCHANGE"** is a bonafide work of

LLOYD LOBO	**4MI98BM013**
MOHANDASA NAYAK	**4MI98BM031**
SHARATH KUMAR	**4MI98BM021**
VIJAY S.N.	**4MI98BM030**

carried out in partial fulfillment of the requirements for awarding the degree of **Bachelor of Engineering** in **Information Technology** discipline in **Manipal Institute of Technology** under **Manipal University**, Manipal during the academic year **2006-2007**.

Mr. Preetham Kumar
Senior Lecturer
Project Guide

Dr. Manohara Pai M.M.
Professor & Head
Dept. of Information & Communication Technology

Annexure – 2B

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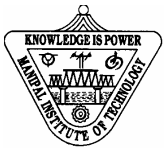

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COMMUNICATION TECHNOLOGY

CERTIFICATE

This is to certify that the thesis entitled **"FRAUD DETECTION USING NEURAL NETWORK"** submitted by **Mr. Renjith** to **Manipal University**, Manipal for the award of the degree of **Master of Technology** is a bonafide record of project work carried out by him under our supervision and it has not been submitted elsewhere for any other Degree or Diploma.

Dr. Kumkum Garg.
Professor
Project Guide

Dr. Manohara Pai M.M.
Professor & Head
Dept. of Information & Communication Technology

Annexure - 3

ABSTRACT

KEYWORDS: Diabetic neuropathy; optical pedobarograph; foot pressures; power ratio; early plantar ulcer detection; ANN foot model.

In diabetic patients, neuropathy (loss of sensation) is the primary etiologic factor. Due to the sensory neuropathy, patients are unable to sense pressure, pain or micro trauma on the foot. An injury or infection in the neuropathic foot results in a serious medical condition often leading to amputation. Therefore foot problems in patients with diabetes mellitus are a major public health concern these days. The present study is aimed at using new diagnostic pressure parameters and correlating them to quantified plantar sensation to understand pressure distribution patterns under the soles of diabetic feet in different levels of sensation loss, possibly responsible for ulcer formation. Sensations of plantar surface of the diabetic foot (in ten standard foot sole areas) are quantified using Semmes–Weinstein monofilaments and classified into four different categories. Standing and walking foot pressure measurements are carried out using optical pedobarograph.

In the space domain analysis of walking foot pressures, studies are performed on 20 normal and 40 diabetic feet in different levels of sensation loss, using new diagnostic parameters, normalised peak pressure (NPP), pressure contact ratio (PCR) and their gradients (relative difference). It is found that the values of these foot pressure parameters of diabetic patients are much higher than those of normal subjects in general and these values increase with degree of neuropathy, in all the areas of the foot. But these pressure parameters in the space domain analysis could not distinguish *clearly* the diabetic feet in different levels of loss of sensation.

A detailed analysis is performed first on standing foot pressure images in frequency domain. A new parameter, power ratio (PR, ratio of power in higher spatial frequency components to the total power in an image) is used to distinguish between the foot pressure image patterns of diabetic neuropathy subjects (in different levels of sensation loss) and those of normal foot. The results could help to detect the early stages of neuropathy responsible for plantar ulcers *only in the heel* of diabetic feet.

The study is carried out further to analyse walking foot pressure images of diabetic subjects in different levels of neuropathy and use the same parameter power ratio, PR (defined earlier) to distinguish normal from the diabetic feet. The parameter is able to distinguish *clearly* the normal from the diabetic feet and also make clear distinctions *without overlap* between diabetic feet in different levels of loss of sensation. The result could help to detect the early stages of neuropathy responsible for plantar ulcers in both the *heel and fore-foot* areas of diabetic feet.

Two comprehensive foot models are developed using artificial neural networks with pressure parameters, namely, NPP, PCR and PR are used as input variables and sensation levels as output variable. The nonlinear model helps in classifying the foot in the category of normal and diabetic in different levels of sensation loss. The neural network model can be trained with sufficient number of data sets of foot pressure parameters corresponding to the ulcer at early stage neuropathy. This model then could help in detecting the plantar surface of foot likely to have ulcer and the information can be utilised by orthopaedic surgeons to devise early corrective methods to prevent the foot-sole ulcers and enhance the quality of life by avoiding the lower limb complications of diabetes.

Annexure - 4

TABLE OF CONTENTS

LIST OF TABLES

ABBREVIATIONS

AH	Adductor Hallucis
ANN	Artificial Neural Network
BMP	Bit map
CCD	Charge Coupled Device
EDL	Extensor Digitorum Longus
EHL	Extensor Hallucis Longus
FDL	Flexor Digitorum Longus
FFT	Fast Fourier Transform
FHL	Flexor Hallucis Longus
HFP	High Frequency Power
IER	Inferior Extensor Retinaculum
LFP	Low Frequency Power
LOPS	Loss of Protective Sensation
MB	Mega Byte
MOS	Metal Oxide Semiconductor
MOSFET	Metal Oxide Semiconductor Field Effect Transistor
MTH	Metatarsal Head
NPP	Normalised Peak Power
NPP Grad.	Normalised Peak Power Gradient

Annexure - 7

NOTATIONS

a_i	Input variables for an artificial neural network
b_k	Output variables of an artificial neural network
M,N	The size of foot area image (in pixels)
n	The number of samples in a foot category
P	Peak pressure in the specified areas of the foot
p	Probability value of Student's t – test
r	Correlation coefficient
S	Foot-sole sensation level
s_i	The output of input-layer of artificial neural network
s_j^h	The output of hidden-layer of an artificial neural network
t	Time during which a pressure of 50% or higher of peak pressure acts on the specified foot area
T	Total contact time of the foot
u, v	Spatial frequency (in cycles per pixel) variables of a foot area image
V	Walking velocity
W	Weight of the subject
w_{ji}^h	Weights of the links between input and hidden layers of an artificial neural network
w_{kj}^o	Weights of the links between hidden and output layers of an artificial neural network
x, y	Space variables (in pixels) of foot area image
θ_j^h	Bias term of hidden layer of artificial neural network
θ_k^o	Bias term of output layer of artificial neural network

CHAPTER 1

INTRODUCTION

1.1 GENERAL

Diabetes continues to be one of the most common underlying factors associated with lower–extremity amputation in post–industrialised and developing countries (Armstrong *et al.*, 1998a). Amputations are perhaps the most feared and well–recognised complication of diabetes by the general public. Ulceration is the most common single precursor to amputation and has been identified as a component in 85% of lower-extremity amputations (Pecoraro *et al*., 1990). Many studies have focused on neuropathy, in conjunction with elevated ground reaction forces, as the principal cause of these ulcerations. It is also hypothesised that at the cellular level, increased rate of tissue deformation may result in elevated intracellular calcium concentration, which may lead to cellular death subsequently causing ulcerations (Landsman *et al.*, 1995). The present study is an effort to understand the pressure distribution patterns under the foot-soles of diabetic subjects at different levels of neuropathy (characterised by different grades of sensation loss) with new foot pressure parameters, possibly indicating the different stages in the progress of neuropathy and hence help to detect the early stages of neuropathy responsible for plantar ulcers.

1.2 DIABETES

Diabetes is a disorder caused by decreased production of insulin, or by decreased ability to use insulin. Insulin is a hormone produced by the pancreas that is necessary for the cells to be able to use blood sugar.

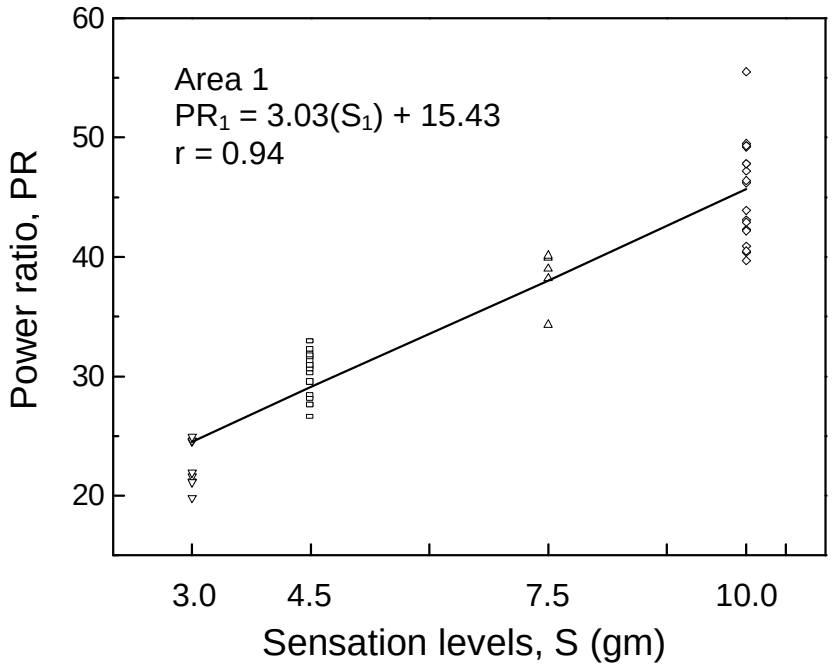

Fig. 5.6 Variation of PR with the levels of sensation, S in the medial heel region (area 1) of 50 feet of diabetic subjects from standing foot pressure image analysis.

Table 5.5 Coefficients of correlation (r) between PR values and levels of sensation (S) and the corresponding regression equations in different areas of the foot in diabetic subjects.

Foot areas	Correlation coefficients (r)	Regression equations
1	0.94	$PR_1 = 3.03 \times S_1 + 15.43$
2	0.96	$PR_2 = 3.45 \times S_2 + 12.94$
4	0.74	$PR_4 = 2.80 \times S_4 + 14.73$
5	0.79	$PR_5 = 2.93 \times S_5 + 14.03$
6	0.77	$PR_6 = 3.28 \times S_6 + 13.21$
7	0.83	$PR_7 = 3.07 \times S_7 + 13.51$
8	0.78	$PR_8 = 4.02 \times S_8 + 08.82$
9	0.74	$PR_9 = 4.19 \times S_9 + 08.02$
10	0.75	$PR_{10} = 4.66 \times S_{10} + 4.66$

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http://mathworld.wolfram.com/CirculantMatrix.html

Note:

- For papers by single authors see example (1)
- For papers by two authors see examples (4,5)
- For papers with more than two authors see examples (2,3)
- For books see examples (6,7,8)
- For articles in edited books / volumes see example (9)
- For papers presented at conference see example (10)
- For information referred from the internet see example (11)