

Final Year Project Handbook



Transverse Electric Modes of Asymmetric Dielectric Slab Waveguide

This project is submitted to the University of Management and Technology (UMT), Lahore for the degree of BS Telecommunication & Networks

By

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Dedication

Every inspiring work requires hard work and supervision of elders especially those who are very close to our heart. My humble effort devotes to my sweet and caring **Parents** whose prayers have made this effort successful.

My humble dedication also goes to my **Advisor** whose untiring support and assistance have made possible the fruition of my efforts.

Most of all my dedication to my great creator our **Almighty God** the author of knowledge and wisdom who made this possible.

FINAL APPROVAL

Panel of Examiners

- **Dean of Department**
Department of Informatics and Systems
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- **Program Director (Final Year Projects)**
Department of Informatics and Systems
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- **Advisor**
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Project Title

TE modes of asymmetric dielectric slab waveguide

Undertaken By

Mohsin Pervaiz

Supervised By

Mr. Muhammad Fahad Zia

Starting Date

20/04/2015

Completion Date

05/02/2016

Tools Used

Mat Lab, MS Paint

Operating System

Windows

Documentation

Functional/ Non-Functional Requirements

Acknowledgement

I would like to sincerely thank my Al Mighty ALLAH, Who has helped me at every stage of my life for His continuous guidance, love, protection and blessings, and I am sincerely grateful to my beloved parents for the love, care and support they have provided me in my life.

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Table of Contents

Final Approval	3
1 Introduction	Error! Bookmark not defined.
2 Literature Review	Error! Bookmark not defined.
2.1 The Optical Fiber Revolution.....	Error! Bookmark not defined.
2.1.1 Performance Developments	Error! Bookmark not defined.
2.1.2 Transmission Windows.....	Error! Bookmark not defined.
2.2 Basic Optical Fiber Structure	Error! Bookmark not defined.
2.3 Refractive Index Profiles of Optical Fiber	Error! Bookmark not defined.
2.3.1 Step Index Fiber.....	Error! Bookmark not defined.
2.3.2 Graded Index Fiber	Error! Bookmark not defined.
2.3.3 Parabolic Refractive Index Profile.....	Error! Bookmark not defined.
3 Modelling Of Light Propagation In Optical Fibres.....	Error! Bookmark not defined.
3.1 Ray Model Of Light Propagation.....	Error! Bookmark not defined.
3.2 Snell's Law	Error! Bookmark not defined.
3.2.1 Total Internal Reflection	Error! Bookmark not defined.
3.2.2 Acceptance Angle	Error! Bookmark not defined.
3.2.3 Numerical Aperture	Error! Bookmark not defined.
4 Asymmetric Dielectric Slab Waveguide.....	Error! Bookmark not defined.
4.1 TE Modes of Asymmetric Dielectric Slab Waveguide	Error! Bookmark not defined.
4.2 Mode Solver.....	Error! Bookmark not defined.
4.3 Simulation	Error! Bookmark not defined.
4.3.1 Guided Modes.....	Error! Bookmark not defined.
4.3.2 Radiation modes	Error! Bookmark not defined.
5 Beam Broadcasting Process.....	Error! Bookmark not defined.
5.1 Propagation of first & Second guided mode in dielectric waveguide	Error! Bookmark not defined.
6 Conclusion	Error! Bookmark not defined.
7 References	Error! Bookmark not defined.
8 Appendix	Error! Bookmark not defined.

List of Figures

Figure 1: Optical fiber structure	Error! Bookmark not defined.
Figure 2: Refraction directory outline and ray broadcast in step directory grits.....	Error! Bookmark not defined.
Figure 3: Multimode optical fiber.....	Error! Bookmark not defined.
Figure 4: Ray model of light transmission.....	Error! Bookmark not defined.
Figure 5: Total internal reflection phenomenon	Error! Bookmark not defined.
Figure 6: Acceptance cone defined by acceptance angle.....	Error! Bookmark not defined.
Figure 7: Asymmetric dielectric slab waveguide structure.....	Error! Bookmark not defined.
Figure 8: Cross section of 2D asymmetric dielectric slab waveguide	Error! Bookmark not defined.
Figure 9: Spatial distribution of TE_0	Error! Bookmark not defined.
Figure 10: Spatial distribution of TE_1	Error! Bookmark not defined.
Figure 11: Spatial distribution of TE_2	Error! Bookmark not defined.
Figure 12: Spatial distribution of TE_3	Error! Bookmark not defined.
Figure 13: Spatial distribution of TE_4	Error! Bookmark not defined.
Figure 14: Spatial distribution of TE_8	Error! Bookmark not defined.
Figure 15: Propagation of first guided mode in dielectric slab waveguide.....	Error! Bookmark not defined.
Figure 16: Propagation of second guided mode in dielectric slab waveguide	Error! Bookmark not defined.

List of Tables

Table 1: Optical fiber transmission windows	Error! Bookmark not defined.
Table 2: Effective refractive index and normalized propagation constant of TE mode....	Error! Bookmark not defined.
Table 3: Cut-off wavelength and distance of guided wave in TE mode	Error! Bookmark not defined.

Abstract

This report discusses the TE types of unequal slab waveguide. The Eigenvalue equation and dispersion relation for TE types of unequal slab waveguide are derived.

The relations of asymmetry, effective thickness and fraction of power propagating in core layer are also derived. The number of modes and their authentic tables and other parameters of waveguide are numerically computed using Mode Solver method. The guided and radiated mode profiles are simulated using the same method. The propagation of guided modes along the core layer of waveguide is simulated and analyzed using Beam Propagation Method.