**TABLE OF CONTENTS**

Page No

**Abstract** 1-2

**Thesis Overview**  3

**2. Chapter 1: Microstrip Antenna 4**

1.1.Introduction 4

1.2. Basic Characteristics 4 1.3.Waves on Microstrip 6

1.3.1.Surface Wave 6

1.3.2.Leaky Wave 7

1.3.3.Guided Wave 8

1.4.Feed Technique 9

1.4.1.Microstrip Line Feed 9

1.4.2.Coaxial Feed 10

1.4.3.Aperture Coupled Feed 11

1.4.4.Proximity Coupled Feed 12

1.5.Analytical Evalution of Rectengular Patch Antenna 13

1.5.1.Transmission Line Modelling 14

1.5.1.1.Resonant Input Resistance 16

1.5.1.2.Inset Feed 19

1.5.2.Cavity Model 22

1.5.2.1.Current Densities 22

1.5.2.2.Field Configuration 25

1.6.Advantages and Disadvantages 26

**2.Chapter 2: Litrature review and methodology 28**

**3. Chapter 3: Circularly Polarised Microstrip Antenna 30**

3.1 Introduction 30

3.2 Different Types of Circularly Polarised Antenna 30

3.2.1.Microstrip Patch Antenna 31

3.2.1.1.Circularly Polarised Patch 31

3.2.1.2.Dual-Orthogonal Fed circularly Polarized Patch 31

3.2.1.3 Singly Fed Circularly Polarized Patch 33

3.3Arrays of Linearly Polarized Patches for Circularly Polarized Radiation 35

3.4 Antenna Performance Parameters 38

3.4.1.Radiation Pattern 38

3.4.2.Directivity 39

3.4.3.Input Impedance 40

3.4.4.Voltage Standing Wave Ratio 41

3.4.5.Return Loss 42

3.4.6.Antenna Efficiency 43

3.4.7.Antenna Gain 43

3.4.8.Polarization 44

3.4.9.Bandwidth 45

**4. Chapter 4: Slotted MicrostripAntennas for CircularPolarization and RFID Application**

4.1.Overview 47

4.2.ASYMMETRIC-CIRCULAR SHAPED SLOTTED MICROSTRIP PATCH DESIGN 49

**5. Chapter 5: Simulation Results 51**

5.1.Results for one circular slot on rectangular patch 51

5.1.1.Return Loss 51

5.1.2.Axial Ratio 51

5.1.3.Gain-Frequency curve 52

5.2.Results for two circular slot on rectangular patch 52

5.2.1.Return Loss 53

5.2.2.Axial Ratio 53

5.2.3.Gain-Frequency curve 53

5.3Results for three circular slot on rectangular patch 54

5.3.1.Return Loss 55

5.3.2.Axial Ratio 55

5.3.3.Gain-Frequency curve 55

5.4.Results for four circular slot on rectangular patch 56

5.4.1.Return Loss 56

5.4.2.Axial Ratio 56

5.4.3.Gain-Frequency curve 57

5.5.Comparative Study of Different Designs 58

**6. Conclusion 59**

**References 60**