## **CONTENTS**

| CHAPTER 1: INTRODUCTION                               |                                      |    |
|---|--------------------------------------|----|
| CHAPTER 2: LITERATURE SURVEY                          |                                      |    |
| CHAPTER 3: PROBLEM IDENTIFICATION                     |                                      |    |
| CHAPTER 4: OBJECTIVE                                  |                                      |    |
| CHAPTER 5: METHODOLOGY                                |                                      |    |
|   | 5.1 Finite Impulse Response Filter   | 7  |
|   | 5.2 Infinite Impulse Response Filter | 8  |
|   | 5.3 Multirate Filter                 | 8  |
| CHAPTER 6: SOFTWARE DESIGN                            |                                      |    |
|   | 6.1 Operating System (Os)            | 10 |
|   | 6.2 Software Used                    | 10 |
|   | 6.3 Python Libraries Used            | 12 |
|   | 6.4 Global Program Variables         | 17 |
|   | 6.5 Implementation Of Python Program | 18 |
| CHAPTER 7: ALGORITHM AND FLOW CHART                   |                                      | 20 |
|   | 7.1 Algorithm                        | 20 |
|   | 7.2 Flow Chart                       | 20 |
| CHAPTER 8: RESULT AND DISCUSSION                      |                                      |    |
| CHAPTER 9: ADVANTAGES, DISADVANTAGES AND APPLICATIONS |                                      | 25 |
|   | 9.1 Advantages                       | 25 |
|   | 9.2 Disadvantages                    | 25 |
|   | 9.3 Applications                     | 25 |
| CHAPTER 10: CONCLUSION AND FUTURE SCOPE               |                                      |    |
|   | 10.1 Conclusion                      | 26 |
|   | 10.2 Future Scope                    | 26 |

## LIST OF FIGURES

| FIGURE<br>NUMBER | FIGURE<br>NAME   | PAGE<br>NUMBER |
|------------------|--|----------------|
| 5.1              | Block Diagram of Finite<br>Impulse Response Filter                       | 7              |
| 5.2              | Block Diagram of Infinite<br>Impulse Response Filter                     | 8              |
| 5.3              | Block Diagram of Cascaded<br>Multirate System                            | 8              |
| 8.1              | Plot of Original signal, FIR Filter and IIR Filter outputs               | 22             |
| 8.2              | Plot of Original Signal,<br>Band pass IIR Filter and<br>Multirate filter | 23             |
| 8.3              | Plot of Original Signal and Multirate Filter                             | 24             |