DECLARATION

We hereby declare that this thesis is our own unaided work and hereby certify that unless otherwise stated, all work contained within this paper is ours to the best of our knowledge. This is based on the results found by ourselves. Materials of work found by the other researchers are mentioned by reference. This thesis, neither in whole nor in part, has been previously submitted for any degree.

This thesis is being submitted for the degree of bachelor of Electrical Electronics and Communication Engineering at Military Institute of Science and Technology (MIST) under Bangladesh University of Professionals (BUP).

Signature of Supervisor   **Signature of Students**

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Lieutenant Colonel A K M Nazrul Islam   Farhana Akter
                                                                            Student ID: 201116018

                                                                            _____

                                                                            Sidratul Moontaha
                                                                            Student ID: 201116021

                                                                            _____

                                                                            Farhana Rahman
                                                                            Student ID: 201116033

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ABSTRACT

Direct Sequence Code Division Multiple Access (DS-CDMA) is a multiple access radio communication system where multiple users can have access to the same system using the same frequency spreading over the entire transmission band. DS-CDMA is one of the techniques to efficiency overcome the frequency selective fading and interferences. In this thesis, an analytical approach is presented to evaluate the bit error rate (BER) performance of DS-CDMA system over frequency selective multipath Rayleigh fading channel with perfect power control using the standard Gaussian approximation. The performance of DS-CDMA over the frequency selective fading channel in terms of bit error rate (BER) is examined with the varying numbers of multipath components, varying number of interfering cells, various process gain, varying the amplitude of the signal and fading variances etc. From the analytical results we have found out the limitations of the system BER on the signal amplitude and signal to noise ratio (SNR). Thereafter, we have determined the optimum system design parameters. The evaluated results show that the BER performance is affected by these parameters.