## *ABSTRACT*

*In the era of advances in information and communication technology, the exchange of information is conducted through the internet. The information transmitted is confidential, and digital information transmitted can be pictures, sounds or videos. So it needed an algorithm that gives security guarantees and have a fast processing time, in order not to interfere with the process of information transmission. In this final task, has designed a security algorithm, which is used to perform the encryption-decryption image.*

*In this final task use two algorithms, AES (Advanced Encryption Standard) algorithm and Chaos algorithm . Chaos algorithm used is Arnold's Cat Map, that is used to perform the process of pixel shuffling and Henon Map that is used for the encoding process. Both will be compared, thus obtained image encryption algorithm with good performance.*

*The results obtained from tests performed in this final task, Chaos algorithm has enough performance to be implemented in image encryption. Chaos algorithm has faster computing time than the AES algorithm. From cipherimage, they both produce cipherimage with a uniform histogram. Correlation coefficient cipherimage both are equally close to 0. When both were tested with noise AWGN, Chaos algorithm is able to survive better than the AES algorithm. This is indicated by the value of PSNR algorithm Chaos have a greater value than the AES algorithm. The Chaos algorithm has a BER value is smaller than the algorithm AES. While the value of the avalanche effect of AES algorithm is closer to 50%, which means more better than Chaos algorithm which is only 15%. For the duration of a brute force attack, the AES algorithm has a* $1.68\ x\ 10^{20}$ *years, while the algorithm Chaos* $2.206\ x\ 10^{12}$ *years.*



*Keywords : Chaos, Arnold's Cat Map, Henon Map , encryption, AES*