

## Abstract

Transfer of information through public network representing an indispensability at this period of information technology. Problem emerge because those information overcome by public network, enable certain party who doesn't have right to using this information. One of the technique used to protect the information is cryptography.

Pursuant to the key, cryptography grouped as private key cryptography and public key cryptography. At private key cryptography, entities to communicate using same key in encryption and decryption, while in public key cryptography's entities use different key in encryption and decryption. In public key cryptography, there are three approach in its security, that is Integer Factorization Problem, Discrete Logarithm Problem, and Elliptic Curve Discrete Logarithm Problem.

In this final project, implementation approach Elliptic Curve at El Gamal Algorithm in course of encoding. On implementation performance of time, memory usage and speed of process analyzed at different data encoding process in a condition, which is different curve type and different file size. Result of performance analysis at process time influenced by key size, and file size.

**Keywords:** *Cryptography, private key cryptography, public key cryptography, Elliptic Curve, El Gamal.*