## ABSTRACT

The digital medical image is a standard for image communication in the medical world which patient's personal information should be protected from illegal accessing. Image encryption is a method that can provide protection of image secrecy. This technique transforms original image into another form that cannot be understood visually so unauthorized parties is unable to see the contents of an image.

This thesis proposes encryption method based on Arnolds Cat Map (ACM) and Bose-Chaudhuri-Hocquenghem (BCH) codes. Arnolds cat map algorithm transforms images by shuffling coordinates of original pixel into new coordinates. On the other hand, BCH encoding scheme improves Arnolds cat map encryption by finding and correcting bits error of pixel value of an image.

This proposed system was tested by giving noise with different variances to rontgen image. These algorithms are expected to provide high accuracy in decrypted image and more resistant to attack. Result showed system using BCH codes has better result of PSNR that equals to infinity and BER that equals to 0 at higher variance of each noise types than system without using BCH codes.

**Keyword:** *medical image, encryption, arnold's cat map, bose-chaudhurihocquenghem (BCH) code.*