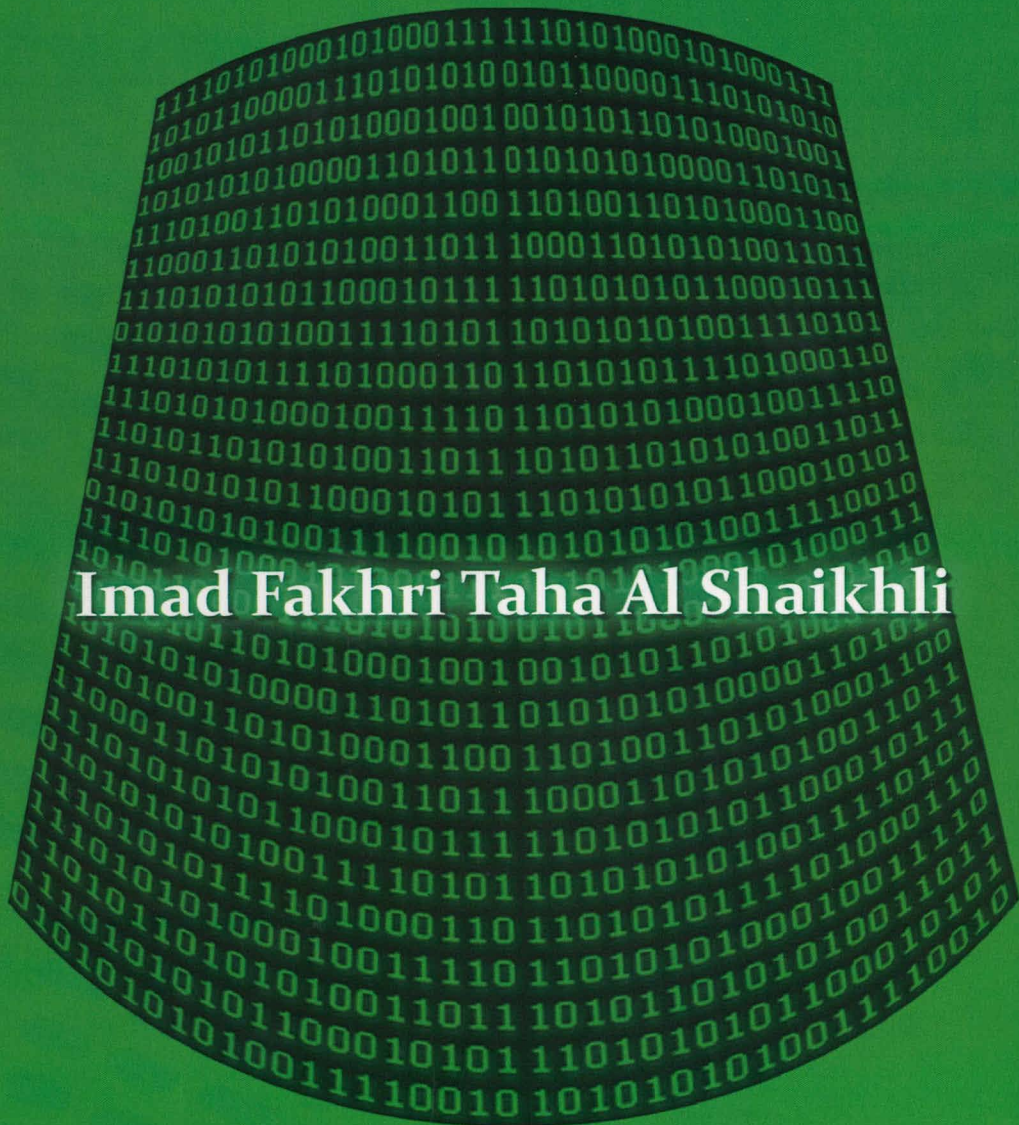


# Cryptography

## Past, Present and Future



Imad Fakhri Taha Al Shaikhli

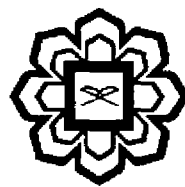


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# **Cryptography: Past, Present and Future**

**Imad Fakhri Taha Al Shaikhli**



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## **6. Data Encryption Standard (DES)**

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- Sufyan Salim Mahmood Al Dabbagh
- Muhammad Fadil Lubis
- Usman bin Mohd Azhar
- Nopan Ziro Ando

### **ABSTRACT**

In this article we will talk about the background of Data Encryption Standard (DES), description of DES and how we will encrypt the plaintext and decrypt the cipher text using that cipher. Also we will introduce into mode of operation of DES and the cryptanalysis of DES.

### **DESCRIPTION OF DES**

Data Encryption Standard DES is a Feistel-type Substitution-Permutation Network (SPN) cipher, specified in FIPS PUB 46. The result of a 1970s effort to produce a U.S encryption standard. DES is a widely-used method of data encryption using a private (secret) key that was judged so difficult to break by the U.S. government that it was restricted for exportation to other countries. There are 72,000,000,000,000,000 (72 quadrillion) or more possible encryption keys that can be used. The key is chosen at random from among this enormous number of keys. Like other private key cryptographic methods, both the sender and the receiver must know and use the same private key. A 16 cycle Feistel system is used, with an overall 56-bit key permuted into 16 48-bit subkeys, one for each cycle. To decrypt, the identical algorithm is used, but the order of