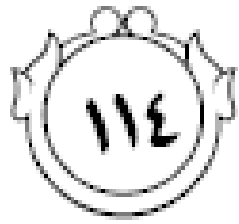بِسْمِ اللهِ الرَّحْمَنِ الرَّحِيمِ

وَقُل رَّبِّ زِدْنِي عِلْمًا ﴿١١٤﴾

صدق الله العظيم

CEN 448

SECURITY AND INTERNET PROTOCOLS

Dr. Ashraf Abdelaziz Taha

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COURSE DESCRIPTION

Overview, Security Concepts, Attacks, Services; Block Ciphers; Block Cipher Operation; Public-Key Cryptography and RSA; Cryptographic Hash Functions; User Authentication Protocols; Transport Level Security; Wireless Network Security; IP Security; Intruders; Malicious Software; Firewalls.

COURSE LEARNING OUTCOMES

This course requires the student to demonstrate the following:

- Identify the main security attack types and standard security terminology.
- Understand concepts such as block ciphers, symmetric/asymmetric encryption, digital signatures, conditional and unconditional security.
- Recognize the ethical aspects of using computer systems.
- Apply encryption and hash algorithms by hand and/or using calculator.
- Assess security vulnerabilities in authentication protocols.
- Implement network security applications and protocols.
- Identify how to implement security at different system and network layers.
- Decide appropriate firewall types and design firewall rules
- Design good security policies based on needs and threats.

MAJOR TOPICS COVERED AND SCHEDULE IN WEEKS:

- Introduction, Security Concepts, Attacks, Services   1
- Block Ciphers and their Operation   3
- Public-Key Cryptography and Hash Functions   2
- User Authentication Protocols   1
- IP and Transport-Layer Security   2
- Wireless Network Security   1
- Intruders and Malicious Software   2
- Firewalls   2
- Review and Evaluation   1

Reference Books

Cryptography and Network Security Principles and Practice

Fifth Edition

by

William Stallings

ASSESSMENT PLAN FOR THE COURSE

Homework/Quizzes	10%
Projects	10%
Midterm 1	20%
Midterm 2	20%
Final Exam	40%