ICT318 Network Security

Level: 3

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY REGULAR SEMESTER

Synopsis:

ICT318 Network Security provides a broad overview on the concept and importance of network security. By learning the basics of encryption, students can understand how the use of keys protect information for Internet applications by verifying the origin of a message (also known as authentication), proving the contents of a message are not modified after sending (integrity), and ensuring the sender cannot deny sending the message (nonrepudiation). Students will also be able to explain how security is implemented at the Application, Transport and Network layers of the TCP/IP stack. In addition, network security technologies that protect the computer network against any theft of information and malicious attacks will be presented, including firewalls, Intrusion Detection and Prevention Systems (IDPS), and IEEE 802.11i.

Topics:

- Overview of security
- Symmetric key cryptography
- Message authentication
- Asymmetric key cryptography
- Key distribution
- Security at the Application layer
- Security at the Transport layer
- Security at the Network layer
- Firewall technologies
- Network monitoring and intrusion detection
- Wireless network security
- Contingency planning and networking incident response

Textbooks:

ICT318 Study Guide (UDC - SUSS)
ISBN-13: SG-2114

Network Security Essentials Applications and Standards 6th William Stallings Pearson
ISBN-13: 9781292154916

Learning Outcome:

- Assess the threats and their associated attacks on network security
- Illustrate how Kerberos / X.509 Certificates enables user authentication
- Discuss the security protocols used at the application, transport and network layers of the TCP/IP stack
- Examine intrusion detection and prevention techniques
- Apply symmetric and asymmetric encryption techniques for protecting information
- Implement security protection using firewalls
- Use IEEE 802.11i to perform Wireless Local Area Network (WLAN) protection

Assessment Strategies - Regular Semester (Daytime Class):

Components	**Description**	**Weightage Allocation (%)**
Overall Continuous Assessment	PRE-CLASS QUIZ 1	2
	PRE-CLASS QUIZ 2	2
	PRE-CLASS QUIZ 3	2
	QUIZ 1	6
	TUTOR-MARKED ASSIGNMENT 1	18
Overall Examinable Components	Written Exam	70
Total		**100**

*The information listed is subject to review and change.