Central University

IT Security & Business Continuity

Course Title IT Security & Business Continuity

Course Code

Overall Course Aim(s) Introduce Students to network security and basic security task and management

- **Teaching Methods**
- Assigned Readings
- Practical Sessions
- Lectures
- Research Assignments

Contact

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Course Information

Course Description Understand the fundamental principles in computer Security and Security configuration

IT Security

As information systems, databases, and Internet-based distributed systems and communication have become pervasive in the commercial world, coupled with the increased intensity and sophistication of security-related attacks, organizations now recognize the need for a comprehensive security strategy. This strategy encompasses the use of specialized hardware and software and trained personnel to meet that need. Computer security education, often termed information security education or information assurance education, has emerged as a national goal in the United States and other countries, with national defense and homeland security implications. The NSA/DHS National Center of Academic Excellence in Information Assurance/Cyber Defense is spearheading a government role in the development of standards for computer security education.

Indicative Content

A. Acquire an understanding of Enterprise Security
B. Carry Out Basic Network Security Task
C. Acquire more hands-on capabilities of analyzing and designing Computer Security.

Learning Outcomes

Learning Objectives

Upon the completion of this course, the student is expected to be able to carry out basic system and concepts of Computer Networks such as:

- Understand the concept of Enterprise Security
- Understand the structures of Security Systems
- Be able to configure Enterprise Security Systems
- Be able to design and implement enterprise Computer Network Security

Recommended Tools: Cisco Packet Tracer and Kali-Linux OS.

Resources:

Prescribed Textbooks

1. **Computer Security: Principles and Practice, 4ed. William Stallings and Lawrie Brown (2018).**
2. *CCNA Routing and Switching 200-120 Official Cert Guide Library* by Wendell Odom (May 2013)
3. *Computer Networking* by James F. Kurose and Keith W. Ross International ed of 6th revised ed: Pearson Education, 2012
4. *Cisco CCNA in 60 Days* **by Paul W. Browning, Farai Tafa and Dario Barinic (3 Mar 2014)**
5. *Head First Networking* 1st Ed by Al Anderson and Ryan Benedetti, O'Reilly Media, 2009.

Summative Assessment

Assessment

Type	**Weighting**	**Week**
Attendance	10%	
Weekly Tests	10%	
Weekly Assignments	10%	
Presentation	10%	
Final Examination	60%	
Total	**100%**	

Period	**Topic/Lecture content**	**Assignments**
Week 1	**Introduction and Security Objectives** • CIA Traid • Security concepts and relationships • Threat Consequences and threat actions • Computer and Network assets • Network/system attack surfaces	N/A
Week 2 &3	**Cryptographic Tools** • Symmetric Encryption • Attacking. Symmetric Encryption • Data Encryption Standard (DES) • Advanced Encryption Standard • Block and Stream Ciphers • Message Authentication • Public Key Encryption Standard	Lab session

	• Digital Signatures	
Week 4	**USER AUTHENTICATION** Authentication Process Risk Assessment for User Authentication Password Authentication Unix Implementation Modern Security Approach	Presentation
Week 5 & 6	**MITIGATING THREATS** • Defending Network/Systems • Network security policies • Security tools, platforms, and services • Mitigating common Network attacks • Threat attack best practices	Lab session
Week 7 & 8	**FIREWALL TECHNOLOGIES** • Firewall concepts • Securing networks with firewall • Firewall in Network design • Firewall best practices • Firewall security architecture	Presentation
Week 9 & 10	**Virtual Private Networks (VPN)** • VPN overview • VPN Technologies • Concept of IPSec • IPSec Protocols • Internet Key Exchange	Lab session
Week 11	Mid Semester Exam	Presentations
Week 12	**Network Security Testing** • Security testing overview • Network security testing • Network security testing tools • Network security testing framework	Lab session
Week 13	**REVISION AND OVERVIEW**	