School of Information Sciences & Technology
Software Engineering Department

ICC 7212   : Cloud Security
Lecturer   : Eng. A. Ndlovu
Office   : W115
Email ID   : andlovu@hit.ac.zw

COURSE OUTLINE

Preamble

Data Centres and their components are interlinked and interconnected with various technologies that enable communication and management of computing resources and data. There are various physical components and virtualization technologies to support the networking. This course explores these.

Expected Learning Outcomes

- After completion of the course students should be able to

- Explain in detail various networking technologies.

- Classify IPv4 IP addresses and transition to IPv6

- Subnet

- Configure switches

- Configure routers

- Interconnect Data Centres

Unit	Week	Topic	Activity
1. **Introduction**	**One**	• Vulnerabilities • Threats • Attacks • CIA triad	
	Two	• Cryptographic Systems • Cloud Security Architecture	
2. **Cloud Data Security**	**Three**	• Cloud Data protection models • Cloud Data security	
3. **Cloud Platform & Infrastructure Security**	**Five**	• Host level Security • Client level	
	Six	• Network level security	
4. **Cloud Application Security**	**Seven**	• Cloud applications security	
5. **Cloud Security Operations**	**Eight**	• Security Management Standards • Availability Management	
	Nine	• Access Control • Security Configurations Management	
6. **Audit and Compliance**	**Ten**	• Governance, Risk and Compliance (GRC) • Management Control Objectives	
	Eleven	• Cloud Security Alliance • Auditing the Cloud	

Teaching Methodology

Course content shall be covered through lectures, practical tutorials and presentations.

Assessment

Continuous Assessment	**40%**
Assignments	15%
Tests	25%
Final Examination	**60%**

References

1. John patrick and Rameez Asif," Securing Cloud Hypervisors: A Survey of the threates,Vulnerabilities and Conutermeasures", 11 June 2018.DOI-10.1155/2018/1681908.
2. [2] Nguyen TH, Di Francesco M, Yla-Jaaski A (2017) Virtual machine consolidation with multiple usage prediction for energy-efficient cloud data centers. IEEE Trans Serv Comput.
3. [3] Basu D,Wang X, Hong Y, Chen H and Bressan S (2019) Learn-as-you-go with megh: Efficient live migration of virtual machines, IEEE Trans Parallel Distrib Syst 30(8):1786–1801.
4. [4] Nasim R, Zola E, Kassler AJ (2018) Robust optimization for energy-efficient virtual machine consolidation in modern datacenters. Cluster Comput 21(3):1681–1709.