**Welcome to Advanced Networking for Offensive and Defensive Environments**

A network is a crucial component of IT infrastructure. Like the roads in a city, a network is the foundation of information transportation, and information sent from one node to the next must be delivered effectively, efficiently and reliably. Because of the criticality of networks, network security is paramount in any infrastructure. A secured network environment provides confidentiality, integrity and availability of information.

In order to protect the network, it is crucial to understand the weaknesses of the network environment and address them appropriately. This course will introduce you to the secured network environment, through the understanding of offensive and defensive techniques.

This course is structured with lectures and labs in a 50/50 ratio. You will learn the important concepts of network security in the lectures, and then you will practice the offensive and defensive techniques during the labs. As well, there will be small group discussions in class on the technologies mentioned in the lecture. Labs focus on the implementation of offensive tools to attack a network and defensive tools to protect and secure the network environment.

This course requires you to be familiar with network concepts and have some practical skill with switches and routers at layer 2 and layer 3. This course will gradually take you through layer 2 to layer 7 of the network environment in relation to security. It is critical that you familiarize yourself with the higher layers (4 to 7) during this course.

Your instructor will be available to answer your questions and assist you with the labs. However, the onus is on you to research and study material available to you on the technologies covered in this course.

## Topics

There are eight modules that cover the following topics:

1. Fundamentals of Network Security
2. Secure LAN
3. Advanced Routing Protocols
4. Network Access Controls
5. Network Address Translation and Web Proxies
6. Firewalls
7. IPS/IDS
8. VPN

**Tips for Success**

* Research and understand the inner workings of layers 4 to 7.
* Research and understand the defensive technologies covered in this course.
* Familiarize yourself with Wireshark.
* Actively participate in the lectures, small group discussions and, most importantly, the labs.