**Course title:** Get Ready for the New Internet: IPv6

**Course description:**

IPv.4 was the Internet standard at the start – and still is. Explosive online growth requires a new protocol and addressing system: IP version 6 (IPv.6). We will look at the differences between IPv.4 and IPv.6, the new capabilities and challenges that IPv.6 brings, and how the new protocol can be implemented alongside existing IPv.4 network traffic and protocols.

**September 8 – Day 1**

**Background and Overview of IPv.4/IPv.6**  
We will look at the history of the Internet Protocol from the first public version (v.4) and the reasons for the transition to version 6.  
  
**September 9 – Day 2**

**Features of IPv.4 Versus IPv.6**In this class, we will look at the traditional structure of IPv.4 and how this changes under IPv.6.  
  
**September 10 – Day 3**

**Addressing in IPv.6**  
One of the primary reasons for IPv.6 is to answer the need for more addressing capability. Along with the new capabilities of the 2128 or approximately 3.4×1038 addresses, there are new methods for assigning addresses, assigning broadcast or multicast messages, and re-defining the previous concept of sub-nets. We will look at these new standards and how they compare to the methods under IPv.4.  
  
**September 11 – Day 4**

**IPv.6: Traffic and Routing**  
With the elimination of the old concept of sub-nets and new routing protocols, IPv.6 provides more powerful routing capabilities, allowing more true end-to-end communications between any two nodes on the network. We will look at the new routing schemes, compare these to more familiar IPv.4 methods, and look at how the two can be made to work together through the lengthy transition.  
  
**September 12 – Day 5**

**Co-existing and Adopting IPv.6 – The Challenges**  
For our final day we will wrap up by looking at the challenges of making legacy IPv.4 equipment and traffic work alongside IPv.6-compliant systems, as well as some of the challenges of implementing IPv.6 in embedded systems such as IoT nodes.