



Advanced Diploma in Routing & Switching

Studying routing and switching allow candidates to learn the basic function of networks and communications, giving them essential skills to plan, coordinate, and execute various security measures and procedures. The routing and switching course also make use of the principles of LAN/WAN, routers, switches and other information technologies to build and maintain networks. Network administration specialists can work in a variety of attractive positions and may also choose to specialise in their field.

Why does the course exists – The course focus on development of knowledge and skills needed in setting up and configuring routers and switches. The internet created a new online/commercial system for different groups/interests. This is all possible because of multicasting – configured through routers and switches – yet there are very few Routing and Switching Engineers!

How it fits into the larger programme – Routers and switches are complicated network hardware equipment, yet their use is utterly important. Moving data locally, nationally and internationally is the norm in today's information world, hence knowledge of routing and switching hardware can not be over stated.

For whom it was designed – The Advanced Diploma in Routing & Switching is suitable for candidates who have completed the Diploma in IP Routing.

How it will benefit candidates – Becoming a Network Engineer is only one option after completing the course. There are many opportunities for skilled routing and switching personnel.

Subjects:

- Advanced IP Routing
- Switching
- Advanced LAN, WAN & Switching Configuration
- Telephone Signalling Systems Technologies
- Fibre Optic Technology

Advanced IP Routing – analysing major routing protocols, including EIGRP, OSPF, IS-IS and BGP. The advanced IP routing also looks at routing between different protocols, IPv6 and configuring routers.

Switching - A switch is used in a wired network to connect Ethernet cables from a number of devices together. The switch allows each device to talk to the others. (Switches are not used in networks with only wireless connections, since network devices such as routers and adapters communicate directly with one another, with nothing in between). Although one can use the ports on the back of a router or modem to connect a few Ethernet devices together, depending on the model, switches have a number of advantages: (i) switches allow dozens of devices to connect; (ii) switches keep traffic between two devices from getting in the way of other devices using the same network; (iii) switches allow control of who has access to various parts of the network; (iv) switches

allow one to monitor usage; (v) switches allow communication (within a network) that's even faster than the Internet; (vi) high-end switches have pluggable modules to tailor them to network needs.

Advanced LAN, WAN & Switching Configuration– Knowledge on setting up internal and external connections and the security aspects is vital. $\frac{3}{4}$ of an organisation's communications is with external entity, hence if routing and switching hardware are not designed and configured efficiently, organisation's communication with the outside world will not be possible; leading to losses. Network Administrators need to be able to monitor, control and analyse a routed networks. Networks go down, hardware fail and security needs to be maintained.

Telephone Signalling Systems Technologies – as seen above, $\frac{3}{4}$ of the organisation information is with the outside world and this done through telephones, hence knowledge of the telephone signalling technologies should be on the forefront. The course looks at the telephone signalling protocols and how they are implemented.

Fibre Optic Technology – copper has limitations, hence the world has a newer and better technology; *fiber*. Like it or not, fibre technology is important in networking