* 1. **Scaling Networks**

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| *SMS Code* | IN615006 | *Directed Learning hours* | 60 |
| *Level* | 6 | *Workplace or Practical Learning hours* | nil |
| *Credits* | 15 | *Self-Directed Learning hours* | 90 |
| Prerequisites | IN615005 | *Total Learning Hours* | 150 |
| *This course approved in another Programme: No* | | | |

***Aims***

To enable students to describe the architecture, components, and operations of routers and switches in large complex networks, and to apply these concepts in specific networking environments.

***Learning Outcomes***

At the successful completion of this course, students will be able to:

Configure and troubleshoot DHCP and DNS operations for IPv4 and IPv6

Describe and configure Spanning Tree Protocol (STP)

Describe link aggregation and VLAN Trunk Protocol (VTP)

Configure and troubleshoot VTP, STP and Rapid Spanning Tree Protocol (RSTP)

Configure and troubleshoot routers in a complex routed network for IPv4 and IPv6, including working with Routing Information Protocol (RIP), Open Shortest Path First (OSPF) and Enhanced Interior Gateway Routing Protocol (EIGRP)

Manage licensing and configuration

***Indicative Content***

* The purpose DHCP and DNS for IPv4 and IPv6 and implementing options in DHCP
* The operation and configuration of Spanning Tree and Rapid Spanning Tree
* The operation and configuration of link Aggregation Protocols and VTP
* Operation and configuration of EIGRP
* Operation and configuration of multilayer OSPFv2 and OSPFv3
* Managing IOS System files and IOS licensing

***Assessment***

This course is developed and quality controlled by Cisco. The weighting of the assessments is able to be localised, but the assessments themselves are controlled by Cisco.

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| **Assessment Activity** | **Weighting** | **Learning Outcomes** |
| Weekly quiz | 25% | All |
| Skills Based Assessment | 25% | 1,4,5,6 |
| Theory Exam | 50% | All |

A single final result to be entered in SMS at completion.

***Resources* Required:**

Cisco Network Academy Routing and Switching series. “Scaling Networks”.