T302 CISCO SCALING & CONNECTING

Course Level	**7**
Credits	**15**
Duration	**16 Weeks** **30 Lecturer Supported** **120 Independent learning hours**
Pre-requisite	**T206**
Co-requisite	**none**

Course Aim
To gain practical and technical networking knowledge that will assist in designing, building and analysing networks and their protocols using advanced technologies.

Learning Outcomes
On successful completion of this course students will be able to:

1. Configure and troubleshoot enhanced switching technologies such as VLANs, Rapid Spanning Tree Protocol (RSTP), Per VLAN Spanning Tree Plus Protocol (PVST+), and EtherChannel
2. Configure, and troubleshoot first hop redundancy protocols (HSRP) in a switched network
3. Configure, and troubleshoot wireless routers and wireless clients
4. Configure and troubleshoot routers in a complex routed IPv4 or IPv6 network using single-area OSPF, multi-area OSPF, and Enhanced Interior Gateway Routing Protocol (EIGRP)
5. Manage CISCO IOS Software licensing and configuration files
6. Describe different WAN technologies and their benefits
7. Describe the operations and benefits of virtual private networks (VPNs) and tunnelling
8. Configure, and troubleshoot serial and broadband connections
9. Configure, and troubleshoot Network Address Translation (NAT) operations
10. Configure, and troubleshoot tunneling operations
11. Monitor and troubleshoot network operations using syslog, SNMP, and NetFlow
12. Describe network architectures:
    - Borderless networks
    - Data centres and virtualization
    - Collaboration technology and solutions

Content
The CISCO Network Academy (CNA) Scaling and Connecting Networks curriculum:

- Introduction to Scaling Networks
- LAN Redundancy
- Link Aggregation
- Wireless LANs
- Adjust and Troubleshoot Single-Area OSPF
- Multiarea OSPF
- EIGRP Advanced Configurations and Troubleshooting
- IOS Images and Licensing
- Hierarchical Network Design
- Connecting to the WAN
- Point-to-Point Connections
- Frame Relay
- Network Address Translation for IPv4
- Broadband Solutions

- Securing Site-to-Site Connectivity
- Monitoring the Network
- Troubleshooting the Network

Learning and Teaching Approaches
The course may be taught both on campus and through blended delivery. Timetabled classes may include, but are not limited to: theory delivery, discussion, practical application, video, web-based information, off-site visits, guest speakers and project work. Blended delivery will be supported by a Learning Management System, other web based technology, email and telephone. This will enhance the opportunity for students to access learning materials, communicate with one another and with their lecturers.

UCOL's learning philosophy is founded on its ability to provide all students with opportunities to access a wide range of support services. Students are able to access all possible assistance so that they can succeed at their chosen course of study. Learning support is intended to diminish or eliminate barriers to learning and academic success.

Assessment Procedures
Assessment is standards based - criterion-referenced and achievement is described by grades. This course will have a minimum of three pieces of assessment to allow success. Every assessment must be attempted/submitted in order to be eligible for a 50% minimum pass.

The specific assessments will be specified in the Course Outline as provided by the lecturer at the beginning of the semester. Assessment activities will be selected from the following range: theory test, practical test, practical demonstration, project, assignment, exercise, interview, debate, report, portfolio, presentation, journal.

Off Campus Learning
Not applicable

Resources and Prescribed / Recommended Texts
The required and recommended reading material will be specified in the Course Outline as provided by the lecturer at the beginning of the semester. Students will use texts and other books, journals, CD–ROM databases, on-line databases, and the Internet to increase their knowledge and awareness of the subject material. The library is also a source of information and guidance in the use of academic referencing and writing techniques. Students engage with the library staff, throughout their studies, with the objective of learning and developing their referencing skills and their general academic writing skills.

To support students who may choose to study off campus, all of the formal material provided in face-to-face sessions will be available in a web-based format. Resource based material may also include computer-assisted instruction, print based workbooks for independent study, multimedia packages, streaming video and streaming audio.