| Module Title: | Networking: Switching and VLAN Concepts |
|---|---|
| Language of Instruction: | English |

| Credits: | 5 |
|---|---|

| NFQ Level: | 6 |
|---|---|

| Module Delivered In | 5 programme(s) |
|---|---|

| Teaching & Learning Strategies: | A combination of traditional lectures and laboratory sessions will be employed. The laboratory sessions will allow for regular formative assessment and feedback. |
|---|---|

| Module Aim: | To provide learners with an appreciation of the characteristics, functionality and management of switches and Virtual Local Area Networks (VLANs) |
|---|---|

| Learning Outcomes | |
|---|---|
| *On successful completion of this module the learner should be able to:* | |
| LO1 | Demonstrate skills in configuring and troubleshooting loop-free, fault tolerant LANs. |
| LO2 | Appraise network requirements to design and implement suitable VLAN topologies. |
| LO3 | Create suitable DHCPv4 and DHCPv6 implementations to automate the process of configuring devices on distinct VLANs. |

| Pre-requisite learning |
|---|
| ***Module Recommendations***<br>*This is prior learning (or a practical skill) that is recommended before enrolment in this module.* |
| No recommendations listed |
| ***Incompatible Modules***<br>*These are modules which have learning outcomes that are too similar to the learning outcomes of this module.* |
| No incompatible modules listed |
| ***Co-requisite Modules*** |
| No Co-requisite modules listed |
| ***Requirements***<br>*This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.* |
| No requirements listed |

## Module Content & Assessment

| Indicative Content |
|---|
| **LAN Switching:**<br>Ethernet, Switching Concepts, CAM table operation, Layer 2 switching methods |
| **VLANs:**<br>VLAN operation, IEEE 802.1Q, trunking, Inter-VLAN routing |
| **Layer 2 link management:**<br>Path redundancy (STP), Fault-tolerance (Etherchannel) |
| **Layer 3 address management:**<br>DHCPv4, DHCPv6 |

| Assessment Breakdown | % |
|---|---|
| Continuous Assessment | 50.00% |
| Project | 40.00% |
| Practical | 10.00% |

| Continuous Assessment | | | | |
|---|---|---|---|---|
| *Assessment Type* | *Assessment Description* | *Outcome addressed* | *% of total* | *Assessment Date* |
| Examination | n/a | 1,2 | 20.00 | Week 6 |
| Examination | n/a | 1,2 | 30.00 | Week 9 |

| Project | | | | |
|---|---|---|---|---|
| *Assessment Type* | *Assessment Description* | *Outcome addressed* | *% of total* | *Assessment Date* |
| Project | n/a | 1,2,3 | 40.00 | Week 12 |

| Practical | | | | |
|---|---|---|---|---|
| *Assessment Type* | *Assessment Description* | *Outcome addressed* | *% of total* | *Assessment Date* |
| Practical/Skills Evaluation | Weekly practical/laboratory work is designed to allow students to demonstrate the achievement of all the learning outcomes. | 1,2,3 | 10.00 | n/a |

| No End of Module Formal Examination |
|---|

**SETU Carlow Campus reserves the right to alter the nature and timings of assessment**

## Module Workload

**Workload: Full Time**

| Workload Type | Frequency | Average Weekly Learner Workload |
|---|---|---|
| Lecture | 12 Weeks per Stage | 2.00 |
| Laboratory | 12 Weeks per Stage | 2.00 |
| Estimated Learner Hours | 15 Weeks per Stage | 5.13 |
| | Total Hours | 125.00 |

## Module Delivered In

| Programme Code | Programme | Semester | Delivery |
|---|---|---|---|
| CW_KWCCD_B | [Bachelor of Science (Honours) in Creative Computing and Digital Innovation](#) | 3 | Mandatory |
| CW_KCCYB_B | [Bachelor of Science (Honours) in Cyber Crime and IT Security](#) | 3 | Mandatory |
| CW_KCCIT_B | [Bachelor of Science (Honours) in Information Technology Management](#) | 3 | Mandatory |
| CW_KCCYB_D | [Bachelor of Science in Cybercrime and IT Security](#) | 3 | Mandatory |
| CW_KCCSY_D | [Bachelor of Science in Information Technology Management](#) | 3 | Mandatory |