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| Module Title: | Networking 2 |
| Language of Instruction: | English |
| Credits: | 5 |
| NFQ Level: | 6 |
| Module Delivered In | 8 programme(s) |
| Teaching & Learning Strategies: | Combination of lectures and practical laboratory sessions. Lectures will take the form of traditional theory and tutorials. Laboratory sessions take the form of individual & group work. |
| Module Aim: | To provide the student with: 1. An understanding of IPv4 and IPv6 addressing. 2. a systematic understanding of WANs and basic routing concepts. 3. the skills required to build a basic Wide Area Network |
| Learning Outcomes | |
| <i>On successful completion of this module the learner should be able to:</i> | |
| LO1 | Demonstrate an understanding of the encapsulation process and the fundamentals of computer network security |
| LO2 | Explain IPv4 and IPv6 addressing & sub-netting including variable length subnet masks |
| LO3 | Demonstrate competence in configuring routers to implement basic WANs |
| Pre-requisite learning | |
| Module Recommendations | |
| <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i> | |
| No recommendations listed | |
| Incompatible Modules | |
| <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i> | |
| No incompatible modules listed | |
| Co-requisite Modules | |
| No Co-requisite modules listed | |
| Requirements | |
| <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i> | |
| No requirements listed | |

Module Content & Assessment

| Indicative Content |
|--|
| Basic Router Commands Basic commands required for initial router configuration |
| IPv4 Addressing Structure and use of IPv4 addresses, sub-netting and variable length subnet masks |
| IPv6 Addressing Structure and use of IPv6 addresses, SLACC concepts |
| ICMP Role of ICMP in Ethernet networks |
| Transport Layer Segmentation process, sequence numbers, role of port numbers, TCP/UDP |
| Application Layer Application Layer protocols - DNS, DHCP, SSH, HTTP, HTTPS |
| Network Security Fundamentals Basic network device security, encrypted passwords, securing access |
| Build a basic Wide Area Network Basic router configuration to enable data transfers between networks |

| Assessment Breakdown | % |
|-----------------------|---------|
| Continuous Assessment | 100.00% |

| Continuous Assessment | | | | |
|-----------------------------|---|-------------------|------------|-----------------|
| Assessment Type | Assessment Description | Outcome addressed | % of total | Assessment Date |
| Other | Two practical examinations to assess the student's knowledge of basic router configuration and their ability to build simple wide area networks | 3 | 40.00 | n/a |
| Practical/Skills Evaluation | Weekly practical/laboratory work is designed to allow students to demonstrate the achievement of the learning outcomes | 1,3 | 20.00 | n/a |
| Other | The students will be given two online tests to assess their understanding of IPv4 and IPv6 addressing and basic network security | 1,2 | 20.00 | n/a |
| Examination | The students will be given a written test to assess their knowledge of the encapsulation process, subnetting, variable length subnet masks and routing concepts | 1,2 | 20.00 | n/a |

No Project

No Practical

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 | | |
|----------------------------|--------------------|--|
| <i>Workload Type</i> | <i>Frequency</i> | <i>Average Weekly Learner Workload</i> |
| Lecture | 12 Weeks per Stage | 1.00 |
| Laboratory | 12 Weeks per Stage | 2.00 |
| Estimated Learner Hours | 15 Weeks per Stage | 5.13 |
| Tutorial | 12 Weeks per Stage | 1.00 |
| 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 | 2 | Mandatory |
| CW_KCCYB_B | Bachelor of Science (Honours) in Cyber Crime and IT Security | 2 | Mandatory |
| CW_KCCIT_B | Bachelor of Science (Honours) in Information Technology Management | 2 | Mandatory |
| CW_KCSOF_B | Bachelor of Science (Honours) in Software Development | 2 | Mandatory |
| CW_KCCYB_D | Bachelor of Science in Cybercrime and IT Security | 2 | Mandatory |
| CW_KCCSY_D | Bachelor of Science in Information Technology Management | 2 | Mandatory |
| CW_KCSOF_D | Bachelor of Science in Software Development | 2 | Mandatory |
| CW_KCCOM_C | Higher Certificate in Science in Computing Programming | 2 | Mandatory |