

## Module specification

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|              |                       |
|--------------|-----------------------|
| Module Code  | CONL710               |
| Module Title | Networking Principles |
| Level        | 7                     |
| Credit value | 15                    |
| Faculty      | FACE                  |
| HECoS Code   | 100365                |
| Cost Code    | GACP                  |

## Programmes in which module to be offered

| Programme title                          | Is the module core or option for this programme |
|--|---|
| MSc Computer Science (Online)            | Core  |
| MSc Computer Science with Cyber Security | Core  |

## Pre-requisites

None

## Breakdown of module hours

|  |                |
|--|----------------|
| Learning and teaching hours  | 15 hrs         |
| Placement tutor support  | 0 hrs          |
| Supervised learning e.g. practical classes, workshops                | 0 hrs          |
| Project supervision (level 6 projects and dissertation modules only) | 0 hrs          |
| <b>Total active learning and teaching hours</b>                      | <b>15 hrs</b>  |
| Placement / work-based learning                                      | 0 hrs          |
| Guided independent study   | 135 hrs        |
| <b>Module duration (total hours)</b>                                 | <b>150 hrs</b> |

|                              |            |
|------------------------------|------------|
| <b>For office use only</b>   |            |
| Initial approval date        | 04/09/2019 |
| With effect from date        | 01/01/2020 |
| Date and details of revision | 27/06/2024 |
| Version number               | 2          |

## Module aims

The aim of this module is to provide students with a comprehensive understanding of fundamental networking concepts, protocols, and technologies. By the end of this module, students will be able to design, configure, and secure computer networks effectively. Additionally, they will explore emerging trends in networking, preparing them for the dynamic landscape of network infrastructure and connectivity. By the end of this module, students will have a solid understanding of networking principles, practical skills in network configuration, and awareness of current trends in the field.

## Module Learning Outcomes - at the end of this module, students will be able to:

|   |   |
|---|---|
| 1 | Implement and adapt networking advanced hardware and software in both theory and practice.  |
| 2 | Systematically select, critically analyse, and justify networking hardware and software products for different applications with due regard for the associated security implications. |
| 3 | Systematically identify complex strategies for planning and implementing networking solutions or dealing with networking problems in real time.                                       |
| 4 | Critically analyse and reflect upon the factors which have an impact on the difference between networking theory and the practical requirements of the workplace.                     |

## Assessment

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

### Indicative Assessment Tasks:

Assessment for this module comprises two components; the first is a practically focused coursework assignment, where students will be required to Design and implement a functional network that adheres to networking principles and best practices. The submission for this assignment will require students to provide an accompanying troubleshooting report documenting any issues encountered during setup and how they were resolved, a clear visual representation of the network in a network diagram, and any relevant configuration files or data. The second assignment is a discussion of the evolution and impact of network protocols.

| Assessment number | Learning Outcomes to be met | Type of assessment | Weighting (%) |
|-------------------|-----------------------------|--------------------|---------------|
| 1                 | 1, 2, 3, 4                  | Practical          | 75%           |
| 2                 | 3, 4                        | Coursework         | 25%           |

## Derogations

None

## Learning and Teaching Strategies

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The overall learning and teaching strategy is one of guided independent study requiring ongoing student engagement. Online material will provide the foundation of the learning resources, requiring the students to log in and engage regularly throughout the eight weeks of the module. There will be a mix of suggested readings, discussions and interactive content containing embedded digital media and self-checks for students to complete as they work through the material and undertake the assessment tasks. A range of digital tools via the virtual learning environment and additional sources of reading will also be utilised to accommodate learning styles. There is access to a helpline for additional support and chat facilities through Canvas for messaging and responding.

## Indicative Syllabus Outline

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- Introduction to Networking
- Network Architecture and Design
- Network Protocols and Services
- Network Security and Threats
- Wireless and Mobile Networking
- Virtual Private Networks (VPNs) and Cloud Networking
- Emerging Trends and Future of Networking

## Indicative Bibliography:

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Please note the essential reads and other indicative reading are subject to annual review and update.

### Essential Reads

W. Stallings, *Data and Computer Communications*, 10th ed. London: Pearson, 2013.

### Other indicative reading

J. F. Beasley and P. Nilkaew, *A Practical Guide to Advanced Networking*, 3rd ed. London: Pearson, 2012.