1. **Title of the module**

COMP8740 - Networks and Network Security

1. **School or partner institution which will be responsible for management of the module**

School of Computing

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 7

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Autumn

1. **Prerequisite and co-requisite modules**

None

1. **The programmes of study to which the module contributes**

Portfolio of taught postgraduate programmes in Computing.

(Compulsory for MSc Computer Security; MSc Networks and Security and MSc Cyber Security.)

1. **The intended subject specific learning outcomes.  
   On successfully completing the module students will be able to:**

8.1 Be capable of comparing and contrasting a wide range of switching, multiple access and transmission techniques used in current communication networks in order to assess their suitability for various applications;

8.2 Be aware of current developments in the Internet, especially protocols that expand the addressing space, and offer scalable routing and multicasting;

8.3 Be aware of the various protocols and architectures used by the Internet including those used to transport real time data streams and to support network Quality of Service;

8.4 Be aware of the mechanisms used to maintain basic network security;

8.5 Have a deeper and integrated understanding of selected key topics at the forefront of this field, including recent developments and outstanding issues;

8.6 Have the skills to keep abreast of future developments in networking;

8.7 Be able to undertake an investigation into areas covered by this module and report on their findings.

1. **The intended generic learning outcomes.  
   On successfully completing the module students will be able to:**

9.1 Time management and organisation;

9.2 Communication skills;

9.3 Report writing;

9.4 Problem solving;

9.5 Independent study and appropriate use of relevant resources;

1. **A synopsis of the curriculum**

Introduction, including a review of network techniques, switching and multiple access. High speed local area networks. Network protocols, including data link, network, transport and application layers and their security issues. Problems of network security and mechanisms used to provide security such as firewalls and network security protocols. Real time data transmission and quality of service. Naming and addressing and related security concerns. Security of IEEE 802.11 networks.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

Tanenbaum, A.S. and Weatherall, D.J., “Computer Networks”, (5th ed), Prentice-Hall, (2011);

Stallings, W., “Data and Computer Communications”, (10th ed), Prentice-Hall, (2014);

Kurose, J. and Ross, K., “Computer Networking: A Top-Down Approach”, (7th ed), Pearson, (2017)

1. **Learning and teaching methods**

Total contact hours: 30

Private study hours: 120

Total study hours: 150

1. **Assessment methods**
   1. Main assessment methods

Computer-based test (app. 1 hour) (20%)

Problem solving exercises (30%)

Examination (2-hours) (50%)

13.2 Reassessment methods

Like for like.

1. **Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.7 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |  |  |
| Private Study |  |  |  |  |  | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Lectures | **x** | **x** | **x** | **x** | **x** |  |  |  |  |  |  |  |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |  |  |
| Computer-based test |  | **x** |  |  | **x** | **x** | **x** | **x** | **x** |  |  | **x** |
| Problem-solving exercises | **x** |  | **x** | **x** |  |  |  | **x** | **x** | **x** | **x** | **x** |
| Examination | **x** | **x** | **x** | **x** | **x** |  |  |  |  |  | **x** |  |

1. **Inclusive module design**

The School recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

The module focuses on technologies and international standards that apply worldwide. Hence the curriculum and learning outcomes are universal in their scope.

**DIVISIONAL SUPPORT OFFICE USE ONLY**

**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
| 03/08/20 | Minor | January 2021 | 10,11 | No |
| July 2023 | Minor | September 2023 | 13, 14 | No |