1. **Title of the module**

COMP6330 (CO633) - Computer Networks and Communications

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 6

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 or Spring

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

Pre-requisite: COMP3220: Foundations of Computing I

 **or** equivalent module

 COMP3370 Computers and the Cloud

**or** equivalent module

 COMP5200 Further Object-Oriented Programming

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

BSc Computer Science,

BSc Computer Science (AI),

BSc Computer Science (Networks),

BSc Computer Science (Cyber Security),

BSc Computer Science (Consultancy),

BSc Computer Science and Management Science,

BSc Computer Science with Artificial Intelligence,

BSc Business Computing,

BSc Web Computing,

BSc Mathematics and Computer Science,

BEng Computer Systems Engineering

and their Year in Industry and Foundation Year variants.

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

8.1 Have a comprehensive and systematic understanding of current network architectures, their individual protocol layers, including the algorithms employed, and mechanisms used to ensure network security.

8.2 Analyse the specification for a protocol and develop software that implements a simple protocol.

8.3 Be aware of performance issues in general and/or analytical terms, and of the trade-offs involved, including security-related trade-offs.

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

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

9.1 Analyse a problem specification and to design and implement a solution.

9.2 Evaluate systems in terms of function and performance, with an awareness of possible trade-offs.

9.3 Communicate technical issues clearly to specialist audiences.

9.4 Make effective use of IT facilities.

9.5 Apply relevant mathematical techniques.

9.6 Manage their own learning and time.

1. **A synopsis of the curriculum**

The module starts with a comprehensive and detailed study of current computer networks and communications technologies. It includes: a review of network techniques, switching and multiple access; high speed local area networks; network protocols and Internet security protocols, including data link, network, transport and application layers; network attacks and defence mechanisms including encryption and tunnelling. A selection of key topics are looked at in greater depth to reveal the state-of-the-art and issues (problems) that remain to be solved.

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

Computer Networks (Fifth Edition), Andrew S. Tanenbaum and David J. Wetherall, Prentice Hall, 2010.

Data and Computer Communications (10th International Edition), William Stallings, Pearson, 2013.

Data Communications and Networking (4th Edition), Behrouz A. Forouzan, McGraw-Hill, 2007

Business Data Communications and Networking (13th Edition), Jerry Fitzgerald, Alan Dennis and Alexandra Durcikova , Wiley, 2017

**Network Security Essentials: Applications and Standards (6th edition),** William Stallings, Pearson, 2017.

1. **Learning and teaching methods**

Total contact hours: 25

Private study hours: 125

Total study hours: 150

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

Sender (Programming) (12 hours) 8%

Receiver (Programming) (18 hours) 12%

Worksheet A (1-hour Moodle Quiz) 10%

Worksheet B (1-hour Moodle Quiz) 10%

Examination (2 hours) 60%

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* | *9.1* | *9.2* | *9.3* | *9.4* | *9.5* | *9.6* |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |
| **Private Study** |  |  | X |  | X | X | X | X | X | X |
| *Lectures* | X | X | X | X |  | X |  |  |  |  |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |
| *Sender* |  | X |  |  | X |  |  | X |  | X |
| *Receiver* |  | X |  |  | X |  |  | X |  | X |
| *Worksheet A* | X |  | X | X |  | X | X |  | X | X |
| *Worksheet B* | 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 topics addressed by this module relate to a field which is of international importance, given the global role of computers in today's technological innovation. The topics covered by this module are international in nature, being identical worldwide and independent of traditional spoken language.

**FACULTIES 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) |
| 15/02/19 | Major | September 2019 | 9,11,12,13,14 | No |
|  |  |  |  |  |

Revised FSO Jan 2018