1. **Title of the module**

EENG8730 (EL873) – Intelligent Networking and the Cloud

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

Engineering and Digital Arts

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)**

Spring

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

EENG8220 Data Networks and the Internet

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

MSc/PGDip in Advanced Communications Engineering

MSc in Advanced Electronic Systems Engineering

MEng in Electronic and Communications Engineering (incl. with Year in Industry)

1. **The intended subject specific learning outcomes.
On successfully completing the module students will be able to:**
2. Understand the key theoretical concepts involved in the operation of high-speed networks.
3. Understand the key theoretical concepts involved in the operation of cloud and edge-cloud content delivery networks.
4. Research and make realistic assessments of current technology trends.
5. **The intended generic learning outcomes.
On successfully completing the module students will be able to:**
6. Demonstrate the use of mathematical models and scientific principles.
7. Use mathematical techniques to solve hardware/software problems.
8. Search for information, integrate it and apply it.
9. Learn effectively, think critically and manage their time.
10. **A synopsis of the curriculum**

High-speed access networks: ADSL,VDSL, G.fast; PONs and point-to-point Ethernet; cable networks (DOCSIS and MoCA); fixed wireless access. High-speed transport networks: SDH and OTN. Quality of Service in the Internet: multicast routing, differentiated services, queuing disciplines and queue management. Multi-protocol label switching (MPLS); wavelength routing and MPλS. Cloud and data centre networking; software-defined networking and virtualised network functions; X-as-a-Service concepts. Industry "hot-topic" seminars.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**
* Survey and tutorial articles in IEEE Communications and IEEE Networks magazines
1. **Learning and teaching methods**

Total contact hours: 28

Private study hours: 122

Total study hours: 150

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

Assignment 1: 1000 word seminars report (15%)

Assignment 2: Case study presentation (10%)

Examination: 2hrs (75%)

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 | 9.1 | 9.2 | 9.3 | 9.4 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |
| **Private Study** |  |  |  |  |  |  |  |
| *Lectures* | **X** | **X** |  | **X** | **X** |  | **X** |
| *Examples Classes* | **X** | **X** |  | **X** | **X** |  | **X** |
| *Industry Seminars* |  |  | **X** |  |  | **X** | **X** |
| *Case-study presentation* |  |  | **X** |  |  | **X** | **X** |
| **Assessment method** |  |  |  |  |  |  |  |
| *Examination* | **X** | **X** |  | **X** | **X** |  | **X** |
| *Case-study Presentation* |  |  | **X** |  |  | **X** | **X** |
| *Essay – 1000 words* |  |  | **X** |  |  | **X** | **X** |

1. **Inclusive module design**

The School/Collaborative Partner *(delete as applicable)* 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**

Students are made aware of internationally developed and specified networking standards, and requirements for global data interconnection.

**If the module is part of a programme in a Partner College or Validated Institution, please complete sections 18 and 19. If the module is not part of a programme in a Partner College or Validated Institution these sections can be deleted.**

1. **Partner College/Validated Institution**
2. **University School responsible for the programme**

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**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 delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
| 03/12/19 | Major | Sep 2020 | 1, 7, 8, 10 | No |
|  |  |  |  |  |