1. **Title of the module**

COMP3250 (CO325) - Foundations of Computing II

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

Division of Computing, Engineering, Mathematical Sciences (CEMS)

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

Level 4

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**

Pre-requisite: COMP3220: Foundations of Computing I

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

BSc Computer Science (all variants), BSc Computing, BSc Software Engineering, BSc Artificial Intelligence all with or without year in industry

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

8.1 Have developed a knowledge and understanding of, and the ability to apply the mathematical principles and concepts behind topics that comprise the CS programmes.

8.2 Have developed formal reasoning skills that will be required elsewhere in the degree programmes in which this module is taken.

8.3 Have basic understanding of Propositional and Predicate Logic: their syntax (connectives, quanitifiers) and their semantics (truth tables, logical equivalences).

8.4 Be able to write and evaluate expressions in Propositional and Predicate Logic.

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

9.1 Have developed mathematical problem solving and analysis skills.

9.2 Have developed numeracy skills to understand and explain the quantitative dimensions of a problem (programme outcome D4).

9.3 Have exercised self-management of their own learning (programme outcome D5).

9.4 Have developed generic skills relating to computational thinking (programme outcome B7).

1. **A synopsis of the curriculum**

This module follows from CO322 and aims to provide students with more understanding of the theory behind the formal underpinnings of computing. It will build upon the abstract reasoning skills introduced in CO322. Matrices, vectors, differential calculus, probability and logic will be introduced.

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

Clarke G & Cook D, A basic course in statistics, Hodder Arnold, 1998.

Croft & Davison, Foundation Maths, Prentice Hall, 2003.

Dean N, The Essence of Discrete mathematics, Prentice Hall.

Nissanke N, Introductory Logic and Sets for Computer Scientists, Addison Wesley.

Page SG, Mathematics: a second start, Ellis Horwood, 1986.

Truss, J.K., Discrete Mathematics for Computer Scientists.

1. **Learning and teaching methods**

For those who have A level mathematics

Total contact hours: 30

Private study hours: 120

Total study hours: 150

For those who do not have A level mathematics

Total contact hours: 40

Private study hours: 110

Total study hours: 150

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

2 hour Examination (50%)

*Vectors (15%)*

*Logic (20%)*

*Probability (15%)*

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* |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |
| **Private Study** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| *lectures* | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| *classes* | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| **Assessment method** |  |  |  |  |  |  |  |  |
| *coursework* | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| *exam* | **x** | **x** | **x** |  | **x** | **x** | **x** | **x** |

1. **Inclusive module design**

The Division 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.

**DIVISIONAL USE ONLY**

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

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| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
| 23/11/2020 | Minor | September 2021 | 7 | No |