1. **Title of the module**

COMP3360 (CO336) - Healthcare Computing

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 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)**

Autumn

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

None

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

Computer Science for Health

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

8.1 Understand the challenges involved in applying technology to problems in modern medicine, with particular reference to medical data and computations on these data.

8.2 Describe how the development of mobile and ubiquitous technology is changing human health, including management of personal health, diagnostics and prognostics of disease, fitness monitoring, identification of health changes and how large-scale data analysis is impacting the healthcare industry in other ways.

8.3 Demonstrate the understanding of fundamental principles of statistics and data processing relevant to medical and health research.

8.4 Design and implement well-documented, maintainable programs in high-level scientific programming languages such as MATLAB, to extract useful knowledge from example datasets from modern medicine.

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

9.1. Identify and analyze criteria and specifications appropriate to specific problems and plan strategies for their solution.

9.2. Demonstrate a basic analytical ability for solving problems involving data.

9.3. Apply principles of effective data management, information organisation and information retrieval skills to data of various kinds, including an appreciation of ethical and data protection issues associated with medical and healthcare systems.

9.4. Deploy effectively the tools used for the construction and documentation of scientific computing software, with particular emphasis on understanding the whole process involved in using computers to solve real-world problems.

9.5. Demonstrate effective use of computing, manage one’s own learning and development including time management and organisational skills.

9.6. Analyze and draw reasoned conclusions concerning structured and, to a more limited extent, relatively unstructured data.

1. **A synopsis of the curriculum**

This module introduces Stage I students to current state of the art in the application of computing technology and data analysis to human health and modern medicine. They will also acquire hands-on technical skills by working with real data in assessments and practical sessions.

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

Attaway, S. (2016) MATLAB: A Practical Introduction to Programming and Problem Solving, Butterworth-Heinemann

Dancey, C. P., Reidy J. and Rowe R. (2012) Statistics for the Health Sciences, Sage Publications

McLoughlin I. (2016) Speech and Audio Processing: a Matlab-based approach, Cambridge University Press, ISBN 978-1107085466

R. Palaniappan (2010) Introduction to Biological Signal Analysis, http://bookboon.com/en/textbooks/it-programming/introduction-to-biological-signal-analysis, BookBoon.

1. **Learning and teaching methods**

Total contact hours: 32

Private study hours: 118

Total study hours: 150

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

2 programming assessments (25% - 20 hours each)

1 Project (50%) (40 hours)

13.2 Reassessment methods

1 piece of coursework (100%)

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 | X |
| *Lectures* | X | X |  |  | X |  | X |  |  | X |
| *Classes* |  | X | X | X |  | X | X | X | X |  |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |
| *A1* | X |  |  | X |  |  | X | X |  |  |
| *A2* |  |  | X |  | X | X |  |  |  | X |
| *A3* | X | 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**

Medway

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.

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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 the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
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Revised FSO Jan 2018