1. **Title of the module**

EENG5150 (EL515) Physiological Measurement

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 5

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-requisites:

EL305 Introduction to Electronics

EL319 Engineering Analysis

BI307 Human Physiology and Disease

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

BEng Biomedical Engineering

BEng Biomedical Engineering with a Year in Industry

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

1. demonstrate an understanding of the principles of physiological measurement and instrument design.

2. demonstrate knowledge of specific examples of physiological parameters and their measurement.

3. demonstrate the necessary skills to design and analyse electronic instruments.

4. Develop an appreciation of the regulatory and safety issues relating to medical devices.

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

1. analyse, interpret and present experimental data in written form.

1. **A synopsis of the curriculum**

This module consists of a series of coherent lectures and practical classes. Technical topics covered in the module include basic error analysis, general principles of measurement and instrumentation, sensing devices, AC circuits, electronic devices and circuits, medical devices, physiological signals, signal conditioning and data presentation elements. The students are taught to understand the role of the various elements of a medical instrumentation system and to specify and evaluate a measurement system for medical applications.

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

Recommended Reading

Medical Instrumentation Application and Design

John G, Webster (Ed)

John Wiley & Sons; 4th Edition (6 Feb 2009)

ISBN-10: 0471676004

ISBN-13: 978-0471676003

Background Reading

Introduction to Electrocardiography

Leo Schamroth

Blackwell Science Ltd; 4th Revised edition (Sep 1971)

ISBN-10: 0632084405

ISBN-13: 978-0632084401

An Introduction to the Physiology of Hearing

James O. Pickles

BRILL; 4th Revised edition (5 April 2013)

ISBN-10: 9004243771

ISBN-13: 978-9004243774

1. **Learning and teaching methods**

Total contact hours: 40

Private study hours: 110

Total study hours: 150

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

* Exam 2 hours 80%
* Assignment 1 10%
* Assignment 2 10%

13.2 Reassessment methods

Reassessment instrument: 100% exam

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 |
| **Learning/ teaching method** |  |  |  |  |  |
| Private Study | **x** | **x** | **x** | **x** | **x** |
| Lectures | **x** | **x** | **x** | **x** |  |
| Example classes | **x** | **x** | **x** |  | **x** |
| **Assessment method** |  |  |  |  |  |
| Exam | **x** | **x** | **x** | **x** |  |
| Assignments | **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**

Internationally recognised books are used as references to deliver materials presented in this module. Internationally developed and recognised notations and mathematics models will also be used in delivering this module.

**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) |
|  |  |  |  |  |
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Revised FSO Jan 2018