1. **Title of the module**

EENG3050 (EL305) Introduction to Electronics

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

Computing, Engineering and Mathematical Sciences

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 course(s) of study to which the module contributes**

BEng Electronic and Computer Engineering with a Foundation Year

BEng/MEng Electronic and Computer Engineering

BEng/MEng Electronic and Computer Engineering with a Year in Industry

BEng Biomedical Engineering with a Foundation Year

BEng Biomedical engineering

BEng Biomedical engineering with a Year in Industry

BEng Mechanical Engineering with a Foundation Year

BEng Mechanical Engineering

BEng Mechanical Engineering with a Year in Industry

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

1. recognise the fundamentals of basic electric components and circuits;

2. analyse simple electric circuits;

3. understand basic input and output electronics for microcontrollers;

4. appreciate a range of sensor and actuator device functions.

5. appreciate ethical, environmental, and design issues in engineering.

1. **The intended generic learning outcomes.
On successfully completing the module students will be able to:**
	1. analyse numerical problems
	2. use computers as an engineering tool.
2. **A synopsis of the curriculum**

The module provides an introduction to the basic knowledge required to understand, design and work with basic electronic circuits and the basic principles underlying the process of Electronic Engineering. No previous electronics experience is assumed and the module proceeds via a sequence of lectures supported by labs designed to give an introduction to practical electronics. Professional engineering concepts including ethical practice and life cycle engineering are also introduced.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**
* Storey, Neil, Electronics A Systems Approach (6th Edition), Pearson, 2017, ISBN 978-292-11406-4
* Floyd, Thomas, Electronics fundamentals: circuits, devices and applications (8th edition), Pearson 2013, ISBN-978-1292025681
* Horowitz, Paul and Hill, Winfield, The Art of Electronics (3rd Edition), Cambridge University Press, 2015, ISBN 978-0-521-80926-9
* Mancini, R, Op Amps for Everyone, (4th Edition), Elsevier, 2013, ISBN 9780128116487.
1. **Learning and teaching methods**

Total contact hours: 40

Private study hours: 110

Total study hours: 150

1. **Assessment methods**
	1. Main assessment methods
* 1 hour lab induction (1%)
* 5 two hour laboratories at 4% each (20%)
* 10 quizzes at 1% each (10%)
* 9 tutorials at 1% each (9%)
* 2 hour Examination (60%)
	1. 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* | *8.5* | *9.1* | *9.2* |
| **Learning/ teaching method** |  |  |  |  |  |  |  |
| Private Study | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Lectures | **x** | **x** | **x** | **x** |  | **x** | **x** |
| Tutorials |  |  |  |  | **x** |  |  |
| Laboratories | **x** |  | **x** | **x** |  | **x** | **x** |
| **Assessment method** |  |  |  |  |  |  |  |
| Laboratories | **x** |  | **x** | **x** |  | **x** | **x** |
| Examination | **x** | **x** |  | **x** |  | **x** |  |
| Tutorials |  |  |  |  | **x** | **x** |  |
| Quizzes | **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**

Engineering is an international discipline with techniques developed and refined by scientists across the globe. Mastery of the subject-specific learning outcomes, will equip students to apply the theories and techniques of this module in a wide range of international contexts. Electronic engineering in a global activity using internationally standardized techniques for characterization and analysis. Internationally recognised and available texts are used. International professional good practice including engineering ethics and life cycle engineering are discussed. The module team includes many members of staff with international experience of teaching and research collaboration. In compiling the reading list, consideration has been given to the range of texts that are available internationally and a selection of texts has been identified to complement the delivery of the material. The support provided to the students is also internationally attuned given our international student body.

**DIVISIONAL 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.**

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| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
| 30/06/16 | Major | September 2016 | 9-12, 14 | No |
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