1. **Title of the module**

EENG0027 (EL027) - Semiconductor and Digital Electronics

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 3

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 and Spring

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

Co-requisite modules:

* EENG0024 - Electromagnetics For Engineers
* EENG0025 - Electrical Principles and Measurements
* EENG0026 - Analogue Electronics
* PHYS0020 - Algebra and Arithmetic (or equivalent)

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

* BEng Computer Systems Engineering including a Foundation Year
* BEng Electronic and Communications Engineering including a Foundation Year

1. **The intended subject specific learning outcomes.  
   On successfully completing the module students will be able to:**
2. Understand the basic principles of operation of semiconductor diodes and transistors;
3. Understand the basic principles of digital electronics;
4. Perform elementary logic arithmetic.
5. **The intended generic learning outcomes.  
   On successfully completing the module students will be able to:**
6. Generate, analyse, present and interpret data.
7. Communicate more effectively in writing.
8. **A synopsis of the curriculum**

This module consists of a series of coherent lectures, laboratory sessions and practical classes. Technical topics covered in the module include logic gates and networks, Boolean algebra, and their applications. It also introduces semiconductor material and devices in theory and their practical applications.

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

* DUNCAN, Tom, 1997. Electronics for today and tomorrow. London: John Murray. ISBN 0719574137.
* ROBERTSON, Christopher R. and DAWSONERA, 2008. Fundamental electrical and electronic principles. Amsterdam: Newnes. ISBN 0080878954.

1. **Learning and teaching methods**

Total contact hours: 43

Private study hours: 107

Total study hours: 150

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

* Exam 2 hours (70%)
* Laboratory reports (24%)
  + Report 1 – 6%
  + Report 2 – 6%
  + Report 3 – 6%
  + Report 4 – 6%
* Homework (6%)
  + Homework 1 – 1.2%
  + Homework 2 – 1.2%
  + Test 1 – 1.2%
  + Test 2 – 2.4%

13.2 Reassessment methods

Reassessment instrument: 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 |
| **Learning/ teaching method** |  |  |  |  |  |
| Lectures | **x** | **x** | **x** | **x** |  |
| Experimental work | **x** | **x** | **x** | **x** | **x** |
| Example classes | **x** | **x** | **x** | **x** | **x** |
| Private study | **x** | **x** | **x** | **x** | **x** |
| **Assessment method** |  |  |  |  |  |
| Exam (70%) | **x** | **x** | **x** | **x** | **x** |
| Lab reports (24%) | **x** | **x** | **x** | **x** | **x** |
| Homework and tests (6%) | **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**

Canterbury

1. **Internationalisation**

Semiconductor diodes, transistors, and logic gates and their operations are technical concepts and knowledges which are internationally recognised in the subject area of digital electronics. 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