

## Basic details

|                                                     |                                                                                                                                                                                                                                                                                                                                                                                    |                 |                                         |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------|
| UID                                                 | <input type="text"/>                                                                                                                                                                                                                                                                                                                                                               | Cohorts covered | Earliest cohort<br><input type="text"/> |
| Long title                                          | <input type="text" value="Biomedical Electronics"/>                                                                                                                                                                                                                                                                                                                                |                 |                                         |
| New code                                            | <input type="text" value="ELEC60005"/>                                                                                                                                                                                                                                                                                                                                             | New short title | <input type="text"/>                    |
| Brief description of module<br>(approx. 600 chars.) | <input type="text" value="This module aims to familiarise you with the area of Biomedical Electronics for creating medical devices that interface to the human body. A number of biomedical devices will be discussed both architecturally and at the circuit level, analysing fundamentals of biomedical signals in addition to the required building blocks for such systems."/> |                 |                                         |
| Available as a standalone module/ short course?     | <input type="text" value="No"/>                                                                                                                                                                                                                                                                                                                                                    |                 |                                         |

## Statutory details

|              |                                        |                                         |                                              |             |
|--------------|----------------------------------------|-----------------------------------------|----------------------------------------------|-------------|
| Credit value | ECTS<br><input type="text" value="5"/> | CATS<br><input type="text" value="10"/> | Non-credit<br><input type="text" value="N"/> | HECOS codes |
| FHEQ level   | <input type="text" value="6"/>         |                                         |                                              |             |

## Allocation of study hours

|                   |                                  |                                                                            |
|-------------------|----------------------------------|----------------------------------------------------------------------------|
|                   | Hours                            |                                                                            |
| Lectures          | <input type="text" value="20"/>  |                                                                            |
| Group teaching    | <input type="text" value="0"/>   | <i>Incl. seminars, tutorials, problem classes.</i>                         |
| Lab/ practical    | <input type="text" value="0"/>   |                                                                            |
| Other scheduled   | <input type="text" value="2"/>   | <i>Incl. project supervision, fieldwork, external visits.</i>              |
| Independent study | <input type="text" value="103"/> | <i>Incl. wider reading/ practice, follow-up work, completion of assess</i> |
| Placement         | <input type="text" value="0"/>   | <i>Incl. work-based learning and study that occurs overseas.</i>           |
| Total hours       | 125                              |                                                                            |
| ECTS ratio        | 25.00                            |                                                                            |

## Project/placement activity

|                                |                                 |
|--------------------------------|---------------------------------|
| Is placement activity allowed? | <input type="text" value="No"/> |
|--------------------------------|---------------------------------|

## Module delivery

|               |                                             |       |                      |
|---------------|---------------------------------------------|-------|----------------------|
| Delivery mode | <input type="text" value="Taught/ Campus"/> | Other | <input type="text"/> |
| Delivery term | <input type="text" value="Term 1"/>         | Other | <input type="text"/> |

## Ownership

|                                 |                                                                                  |
|---------------------------------|----------------------------------------------------------------------------------|
| Primary department              | <input type="text" value="Department of Electrical and Electronic Engineering"/> |
| Additional teaching departments | <input type="text" value="0"/><br><input type="text"/>                           |

Delivery campus **South Kensington**

## Collaborative delivery

Collaborative delivery? **N**External institution **N/A**External department **N/A**External campus **N/A**

## Associated staff

| Role          | CID | Given name | Surname        |
|---------------|-----|------------|----------------|
| Co-lecturer   |     | Tim        | Constandinidou |
| Module leader |     | Pantelis   | Georgiou       |
|               |     |            |                |
|               |     |            |                |
|               |     |            |                |
|               |     |            |                |
|               |     |            |                |
|               |     |            |                |
|               |     |            |                |

## Learning and teaching

### Module description

Learning outcomes Upon successful completion of this module, you will be able to:

1. Interpret biomedical signals and define their requirements for detection and processing.
2. Identify the required building blocks for a given biomedical system.
3. Design circuits and systems for a given biomedical system specification.

Module content Introduction to Medical Devices;  
The Human Body and its Signals;  
Bio-Potentials and Instrumentation;  
Electrical Stimulation;  
Bio-chemical Sensing;  
Safety and regulatory aspects of Medical Devices;  
Wearable Medical Devices;  
Genetic and Metabolic Systems;  
Energy Sources for Medical Devices;  
Neuro-prosthetics.

Learning and Teaching Approach This module is taught through lectures which are supported by problem classes.

Assessment Strategy The module is assessed by a 3-hour, closed book, written examination.

Feedback You will be provided with written comments on exam example answer sheets.

Reading list  
Supplementary: Webster, J.G. & Clark, J.W.: Medical Instrumentation: application and design, John Wiley & Sons, 2006 (supplementary reading)

## Quality assurance

Date of first approval

Date of last revision **July 2021**

## Office use only

QA Lead

Department staff

Date of this approval July 2025

Date of collection

Module leader Pantelis Georgiou

Date exported

Date imported

Notes/ comments

Template version

## Assessment details

### Grading method

Numerical

Pass mark

40%

## Assessments

[illegible]

100%