

## MODULE DESCRIPTOR

### Module Title

Biosensors			
Reference	ENM405	Version	1
Created	May 2022	SCQF Level	SCQF 11
Approved	June 2022	SCQF Points	15
Amended		ECTS Points	7.5

### Aims of Module

To provide the student with the ability to link engineering principles to different transduction methods and biosensors.

### Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Critically evaluate the theory behind biosensors.
- 2 Critically analyse data from a range of sensor technologies used to monitor and measure physiological and health related problems.
- 3 Critically select appropriate sensor systems for different applications considering the advantages and disadvantages of different sensor technologies.
- 4 Evaluate the principles of signal processing and data handling in the measurement of health related problems.

### Indicative Module Content

Operations, transduction and physics underlying optical, mechanical and electrochemical biosensors. Use of various signal processing, statistical and data handling techniques. Various power supply devices and its interface with biosensing and measuring system. The physical phenomenon behind detecting physiological signals and development of methods to detect signals of blood pressure, glucose, ECG, motion, force, pressure, muscle activity, oxygen consumption.

### Module Delivery

A combined approach utilising formal lectures, tutorials and practical work.

**Indicative Student Workload**

	Full Time	Part Time
Contact Hours	50	N/A
Non-Contact Hours	100	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

**ASSESSMENT PLAN**

If a major/minor model is used and box is ticked, % weightings below are indicative only.

**Component 1**

Type:	Coursework	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4
Description:	The module will be assessed by a lab report.				

**MODULE PERFORMANCE DESCRIPTOR****Explanatory Text**

Component 1 comprises 100% of the module grade. To pass the module, a D grade is required.

Module Grade	Minimum Requirements to achieve Module Grade:
<b>A</b>	A in Component 1.
<b>B</b>	B in Component 1.
<b>C</b>	C in Component 1.
<b>D</b>	D in Component 1.
<b>E</b>	E in Component 1.
<b>F</b>	F in Component 1.
<b>NS</b>	Non-submission of work by published deadline or non-attendance for examination

**Module Requirements**

Prerequisites for Module	EN3500 Signal Acquisition, Instrumentation and Control or equivalent.
Corequisites for module	None.
Precluded Modules	None.

**INDICATIVE BIBLIOGRAPHY**

- 1 Biosensors and Nanosensors - IAS027C (McWilliams, 2013) Banica FG (2012). Chemical Sensors and Biosensors: Fundamentals and Applications.