UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Clinical Diagnostics
Module Code	MHT7014-B
Academic Year	2020/1
Credits	20
School	Department of Biomedical and Electronics Engineering
Subject Area	Medical and Healthcare Technology
FHEQ Level	FHEQ Level 7
Pre-requisites	N/A
Co-requisites	N/A

Contact Hours	
Type	Hours
Online Lecture (Asynchronous)	10
Online Tutorials (Synchronous)	20
Directed Study	161

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 2

Module Aims

This module aims to engender specialist knowledge and understanding of clinical signals measurements and analysis both in theory and in practice. It also aims to develop mathematical and software skills in relation to clinical signals and an understanding of the body as an electrical machine.

Outline Syllabus

The physiological origin of electrical activity.

Electromyography (EMG). Electrical activity in the musculo-skeletal system. EMG Laboratory.

The electrocardiogram (ECG). Electrical activity of the heart. ECG Laboratory. The electroencephalogram (EEG). Electrical activity in the brain. EEG Laboratory.

Learning Outcomes	
Outcome Number	Description
01	Measure and analyse clinical signals from a diagnostic perspective
02	Describe the principles and techniques underlying the analysis
03	Understand the physiological basis and clinical relevance of various signal types
04	Critical evaluate data in a clinical context
05	Analyse and critically evaluate the clinical significance of electrical signals arising from physiological processes

Learning, Teaching and Assessment Strategy

Core content will be delivered through key lectures and directed reading, providing students with the opportunity to acquire the information to enhance their knowledge and understanding of subject LO 1,2,3,4,5,6. This will be complemented by group discussions and tutorials to allow students to apply this learning to specific issues.

Discipline skills will be developed in laboratory classes, tackled by working in small groups supported by members of academic staff LO 1,2,3,4,5,6.

Directed study provides students with the opportunity to undertake guided reading and to develop their own portfolio of learning to enhance transferable skills and knowledge LO 1,2,3,4,5,6.

The VLE will be used to provide access to online resources, lecture notes and external links to websites of interest.

100% Coursework portfolio of lab work, results and analysis together with an individual mini-project.

This module satisfies the below Learning Outcomes as specified by the Accreditation of Higher Education Programmes: Third Edition (AHEP3) as published by The Engineering Council in-line with the UK Standard for Professional Engineering Competence (UK-SPEC). These outcomes specify six key areas of learning: Science and Mathematics (SM), Engineering Analysis (EA), Design (D), Economic, Legal, Social, Ethical and Environmental Context (EL), Engineering Practice (P) and Additional General Skills (G).

SM1m, SM2m, SM3m, SM5m, SM6m, EA1m, EA2, EA3m, EA4m, EA6m.

Further details of these learning outcomes can be found at https://www.engc.org.uk/.

Mode of Assessment				
Type	Method	Description	Length	Weighting
Summative	Coursework	Mini project on an aspect of clinical diagnostics approved by the lecturer	N/A	30%
Summative	Coursework	Report including results, analysis and discussion on the lab sessions	N/A	70%

Reading List
To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:
This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.
