

Module Details	
Module Title:	Functional Anatomy and Human Physiological Measurements
Module Code:	MHT5014-B
Academic Year:	2019-20
Credit Rating:	20
School:	Department of Biomedical and Electronics Engineering
Subject Area:	Medical and Healthcare Technology
FHEQ Level:	FHEQ Level 5
Pre-requisites:	
Co-requisites:	

Contact Hours	
Type	Hours
Lectures	48
Tutorials	24
Directed Study	128

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 2 (Feb - May)

Module Aims
To assist the students to develop their knowledge and understanding of functional anatomy and physiology of the human body including cardiovascular and respiratory physiology; muscular-skeletal systems; and human fluid mechanics and their evaluation and standard testing methods.

Outline Syllabus
The most relevant physiological measurements for the assessment of human body including blood pressure, electrocardiograph, spirometry (lung/pulmonary function), peak expiratory flow, skin analysis (moisture, oil and softness/roughness), metabolic rate and kidney, i.e. to measure metabolic rate at rest and for exercising subjects, to estimate body composition, i.e. to measure

body mass index (BMI), body fat content and lean body mass using the bioelectric impedance (BI) technique, Oxygen-haemoglobin measurement using the pulse oximeter and to examine urine and blood with normal values only by assessment. Finally to study the flow behaviour of common substances such as polymer melts, body fluids such as synovial fluid, blood and clotted blood.

Learning Outcomes

1	Describe the functional anatomy and physiology of the human musculo-skeletal, cardiovascular and respiratory systems;
2	Define and be able to carry out and evaluate key physiological measurement processes for the musculo-skeletal, cardiovascular and respiratory systems;
3	Relate physiological changes to functional activity
4	Interpret data and use it to explain the most relevant clinical observations.
5	Apply scientific methods; interpret data; and solve problems systematically

Learning, Teaching and Assessment Strategy

Knowledge disseminated and concepts explored in lectures and laboratory practicals with learning supported by tutorial problems. Formative assessment and oral feedback given in tutorials. Skills developed and learning contextualised in laboratory classes. The formal examination and laboratory reports will assess all of the learning outcomes expressed in the descriptor. The learning outcomes (1-5) are assessed by 2.0 hours of formal closed book exam in May (70%) to answer 3 out of 5 questions and one formal laboratory report (LO4), 2000 words (30%).

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).

SM1b, SM2b, SM3b, EA2, D2, D6, EL1, EL4, EL5, EL6b, P1, P2, P3, P6, G1, G2, G3b, G4. Further details of these learning outcomes can be found at <https://www.engc.org.uk/>.

Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Laboratory Report	Formal Lab Report	0-2000 words	30%
Formative	Examination - closed book	Functional Anatomy and Human Physiological Measurements	2 hours	%
Summative	Examination - closed book	Functional Anatomy and Human Physiological Measurements	2 hours	70%

Referral	Examination - closed book	Functional Anatomy and Human Physiological Measurements	3 hours	100%
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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.