MODULE DESCRIPTOR

Module Title	**Clinical and Applied Biomechanics**
Course Title	BSc (Hons) Sport and Exercise Science (836)
School	☒ ASC ☐ ACI ☐ BEA ☐ BUS ☐ ENG ☐ HSC ☐ LSS
Division	Human Sciences
Parent Course (if applicable)	
Level	6
Module Code *(showing level)*	ASC_6_468
JACS Code (completed by the QA)	
Credit Value	20 credit points
Student Study Hours	Total learning hours: 200 Contact hours: 51 Student managed learning hours: 149
Pre-requisite Learning	Biomechanics 2
Co-requisites	None
Excluded combinations	None
Module co-ordinator	Name: Dr Darren James Email: jamesd6@lsbu.ac.uk
Short Description (max. 100 words)	This module has been designed to allow students to apply their knowledge of Biomechanics within the clinical domain. It will primarily focus on experimental techniques in which to assess human movement and function, as well as developing students' understanding of the tolerance/intolerance of biological tissues to mechanical loading. At the end of this module, students' will have an in-depth knowledge of important Biomechanical methods of assessment, the human tendon-musculoskeletal system, mechanisms of injury/pathology and rehabilitation, whilst attaining relevant practical skills. The knowledge and skills developed will be assessed through an oral presentation articulating the collection, analysis and interpretation of experimental data.
Aims	The aims of this module are: 1. To develop students' awareness of important biomechanical methods of assessment and their application in the clinical domain. 2. To further students' understanding of the human musculoskeletal system and introduce them to the tendon-musculoskeletal system. 3. To provide an in-depth understanding of the mechanical behaviour of biological tissues normally and during maturation, injury and pathology;

	4. To enable students to design a protocol for the assessment of human movement/function that leads them to implement, collect, analyse and interpret experimental data.
Learning Outcomes (4 to 6 outcomes)	By the end of this module, students will be able to: 1. Demonstrate an appreciation of Biomechanics within the clinical domain; 2. Demonstrate their knowledge and understanding of the human (tendon-) musculoskeletal system and assessment of; 3. Demonstrate a practical proficiency in assessing human movement/function; 4. Explain the mechanisms underpinning restricted movement. 5. Critically evaluate experimental data and place it in the context of evidence that they have synthesized from the literature. 6. Clearly articulate themselves in front of an audience and demonstrate a confidence and knowledge in which to answer questions.
Employability	This module is designed to provide students with the skills and knowledge to understand and assess human movement and function, inclusive of alterations induced through either injury and/or pathology. Students will learn to identify effective interventions to address abnormal movement behaviour. Such skills are invaluable if the student wishes to pursue a career in related areas, for example: physiotherapy, sports medicine and biomedical engineering, or progress to postgraduate research.
Teaching and learning pattern	Contact hours includes the following: (please click on the checkboxes as appropriate) √ Lectures ☐ Group Work: ☐ Seminars ☐ Tutorial: ☒ Laboratory ☒ Workshops ☒ Practical ☐ VLE Activities
Indicative content	Human tendon-musculoskeletal Biomechanics Maturation, injury, pathology and rehabilitation Gait analysis Dynamometry Ultrasound Electromyography
Assessment method (Please give details – of components, weightings, sequence of components, final component)	Formative assessment: There will be formative assessments throughout the module relating to theoretical and practical comprehension. Assessment-specific feedback in preparation for summative assessment. Summative assessment (100% Coursework): A 30-min individual oral presentation, using powerpoint (or variation of), to document the collection, analysis and interpretation of experimental data relating to an area from the module's indicative content. Students will also be assessed on their knowledge and practical skills resulting from questions at the end of their presentation. The mark scheme will address all learning outcomes.

Mode of resit assessment (if applicable)	Formative assessment: Assessment-specific feedback in preparation for summative assessment. Summative assessment: As above
Indicative Sources ***(Reading lists)***	Core Reading: 1. Biomechanics of Skeletal Muscles (ISBN-13: 9780736080200); 2. Neuromechanics of Human Movement (ISBN-13: 9781450458801); 3. Research methods in Biomechanics (ISBN-13: 9780736093408); 4. Biomechanics of Musculoskeletal Injury (ISBN-10: 0873227794) 5. Whittle's Gait Analysis (ISBN-13: 9780702042652) 6. Biomechanical Evaluation of Movement in Sport and Exercise: the British Association of Sport and Exercise Sciences guidelines (ISBN-13: 9780203935750).
Other Learning Resources	VLE