University of the West of England
BRISTOL

CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data						
Module Title	Advanced Cardiac Physiology					
Module Code	USSJY3-30-3		Level	3	Version	1.1
Owning Faculty	Health and Applied Sciences		Field	Applied Sciences		
Department	Applied Sciences					
Contributes towards	BSc. (Hons) Healthcare Science (Physiological Sciences) : Cardiac Physiology					
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Standard	
Pre-requisites	USSKAX-30-2 CARDIOVASCULAR HYSIOLOGY AND PATHOPHYSIOLOGY B, USSKAW-30-2, CARDIOVASCULAR HYSIOLOGY AND PATHOPHYSIOLOGY A		Co- requisites			
Excluded Combinations			Module Entry requirements			
Valid From	September 2012		Valid to	September 2018		

CAP Approval Date	V1 *May 2012* V1.1 *July 2016*

Part 2: Learning and Teaching	
Learning Outcomes	On successful completion of this module students will be able to: 1. Discuss the key areas of physiology, pathophysiology and pharmacology related cardiac pacing, including bradycardia management.(A,B) 2. Discuss the key areas of physiology, pathophysiology and pharmacology relating to acquired and inherited cardiac abnormalities and their treatment and management. (A,B). 3. Critically analyse the value of clinical audit in optimising services.(B) 4. Discuss the differences between children and adults with respect to cardiac Physiology and pathophysiology, with reference to a range of disease pathologies. (A,B) 5. Critically evaluate the importance of patient-centred care within the relevant care pathway. (A,B) 6. Actively seek accurate and validated information from all available sources with respect to cardiac investigations. .(A,B) 7. Select and apply appropriate analysis or assessment techniques and tools. (A,B) 8. Critically discuss the problems associated with the care of patients undergoing cardiac investigations or treatments. (A,B) In addition the educational experience may explore, develop, and practise <u>but not formally discretely assess</u> the following Professional aspects, as set out within the Modernising Scientific Careers Curriculum:

	1. Respect and uphold the rights, dignity and privacy of patients. 2. Establish patient-centred rapport and demonstrate effective communications skills. 3. Appreciate the empathy and sensitivity needed when dealing with the patient experience of long-term conditions and terminal illness.
Syllabus Outline	Patient Centred Care • Communication skills • Consent • Confidentiality • Disability including learning disabilities Care pathways for cardiovascular disease relating to the following: • **Cardiac Pacing** • Basic electrophysiological concepts underlying pacing • Cardiac cycle and potentials • Equipment and set up • Principles and application of rhythm management devices • Pacing modes, codes, and timing cycles • Indications & techniques for permanent and temporary pacing • Haemodynamics of cardiac pacing • Indications and contraindications for device implantation • Implantation techniques and asepsis, and removal • Follow up assessment of pacemaker patients & troubleshooting • Principles and applications for use of Implantable cardioverter defibrillators and cardiac resynchronisation therapy • **Introduction to echocardiography** • The principles of ultrasound and echo modes • Introduction to windows and views, velocities and pressures • Indications for echo • Utilising echocardiography to assess pathophysiological cardiac conditions in adult and paediatric patients • **Congenital heart disease** • Paediatric ECG interpretation • Embryology • Circulatory changes at birth • Simple and complex cardiac abnormalities including: • - Atrial Septal Defects • - Ventricular Septal Defects • - Patent Ductus Arteriosus • - Coarctation of the Aorta • - Tetralogy of Fallot • - Complex pathologies • - Treatment and management • Physiology, pathophysiology and pharmacology relating to Inherited, Genetic and Acquired Heart conditions & cardiac output control • **Pharmacology:** • Be able to describe and evaluate the mechanism of action and indications for cardiovascular drugs for a range of applications including: • Hypertension • Heart failure • Anti-coagulents /anti-platelet • Inotropes • Rhythm control

	• Cardiac catheterisation lab pharmacology • Dyslipidaemias This module will also build on earlier work to develop the themes of public health and epidemiology of cardiovascular disease, risk factors, risk assessment and primary prevention including behavioural change management.
Contact Hours/Scheduled Hours	• The student will have a minimum of 6 hours per week contact time over the course of semester 1. The module will be delivered by specialist practitioners within the work-place setting and will comprise lectures, seminars, tutorials, practicals, and observation as appropriate to the module content at the time. The teaching will take place at UWE, and NHS trusts within the region.
Teaching and Learning Methods	Students are expected to spend 72 hours on scheduled learning and 192 hours on independent learning. Independent learning will take the following forms with an approximate indication of time required for each: • Essential reading to support acquisition of knowledge relating to lectures and practical exercises – 96 hours • Researching case studies & preparation and submission of assessment, – 24 hours • Revision and preparation for exam – 72 hours • **Placement learning**: may include practice placement learning, & clinical workshops. There will be observational learning and discussions within the placement setting – 36 hours **Scheduled learning** includes lectures, seminars, tutorials, demonstration, practical classes and workshops, work based learning. **Independent learning** includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc.
Key Information Sets Information	Key Information Sets (KIS) are produced at programme level for all programmes that this module contributes to, which is a requirement set by HESA/HEFCE. KIS are comparable sets of standardised information about undergraduate courses allowing prospective students to compare and contrast between programmes they are interested in applying for.

Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours	
300	72	192	36	300	

	The table below indicates as a percentage the total assessment of the module which constitutes a - **Written Exam**: Unseen written exam **Coursework**: Integrated case study portfolio. Please note that this is the total of various types of assessment and will not necessarily reflect the component and module weightings in the Assessment section of this module description: Total assessment of the module: Written exam assessment percentage 50% Coursework assessment percentage 50% 100%
Reading Strategy	Students will be expected to purchase any core text recommended, access to the core text will also be provided for reference via the library, but is not expected to negate the need for the student to provide their own copy. Students will be expected to access all other essential reading either via handouts provided or online through the library, Blackboard, or other recommended source (typically free access e-journal). Wherever possible, where free online access is not available digitalised copies of book chapters or articles will be provided. All students are encouraged to read widely using the library catalogue, a variety of bibliographic and full text databases and Internet resources. Many resources can be accessed remotely. Guidance to some key authors and journal titles available through the Library will be given in the Module Guide and updated annually. Assignment reference lists are expected to reflect the range of reading carried out
Indicative Reading List	*The following list is offered to provide validation panels/accrediting bodies with an indication of the type and level of information students may be expected to consult. As such, its currency may wane during the life span of the module specification. However, as indicated above, CURRENT advice on readings will be available via other more frequently updated mechanisms.* Deal, Johnstrude and Buck (2004) Paediatric ECG interpretation: An illustrative guide. Blackwell Futura. Ellenbogen K.A & Wood M.A (2008) Cardiac pacing and ICDs. Oxford. Blackwell Publishing Frampton, S. B & Charmel, P. A (2009) Putting patients first: best practices in patient-centered care. 2nd ed. Jossey-Bass. eBook Hayes DL, Asirvatham SJ, Friedman PA (2013) Cardiac Pacing, defibrillation and resynchronisation. 3rd Edition. Wiley Blackwell. Bonow,RO, Mann DL Zipes DP, Libby P (2012) Brunwalds Heart disease.9th Edition. Elsevier Kenny T. (2005) The Nuts and Bolts of Cardiac Pacing. Second edition. Wiley-Blackwell. Klabunde R.E. (2012) Cardiovascular Physiology Concepts. Second Edition. Lippincott Williams & Wilkins. Loewy Kirby M (2007) Cardiac Development Oxford University Press Lue H-C (2006) ECG in child and adolescent. Blackwell Futura

	Nobel A., Johnson R., Thomas A., and Bass P. (2010) The Cardiovascular System: Basic Science and Clinical Conditions. Second edition. Churchill Livingstone. Otto CM (2009) Clinical echocardiography. Saunders Elsevier Rajendram R., Ehtisham J. & Fofar C. (2011) Oxford Case Histories in Cardiology. OUP Oxford. **Rang HP, Ritter JM, Flower RJ, Henderson G(2016) Pharmacology 8th edition Elsevier** **Journals** Acute Cardiac Care Journal of Cardiac Failure Journal of Interventional Cardiac Electrophysiology

Part 3: Assessment	
Assessment Strategy	The assessments within this module have been designed to show that the student has developed the required knowledge and clinical skills required to practice as a cardiac physiologist. • Component A (controlled) will take the form of an end of module exam. The exam will explore the student's ability to discuss, evaluate and synthesise materials and topics covered during the course of the module. The focus of the exam will be on interpretation and analysis of relevant clinical data and scenarios. • Component B coursework will take the form of an integrated case-study portfolio, which will include completion of a range of relevant clinical tasks undertaken in practical classes and clinical workshops. The focus of the clinical workbook will be to analyse, assess, & interpret clinical data and patient scenarios. This is an essential requirement of a healthcare science practitioner. • Opportunities for formative assessment will occur throughout the module to check students' grasp of content. The nature of the formative assessment will be designed to ensure student familiarity with the summative assessment styles. • The generic departmental assessment criteria will be used for all assessments.
Identify final assessment component and element	**Component A, element 1**

% weighting between components A and B (Standard modules only)	**A:**	**B**:
	50	**50**

First Sit	
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Exam (3 hours)	100
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Integrated case study portfolio	100

Resit (further attendance at taught classes is not required)	
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Exam (3 hours)	100
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Integrated case study portfolio	100

If a student is permitted a retake of the module under the University Regulations and Procedures, the assessment will be that indicated by the Module Description at the time that retake commences.