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Title: TECHNICAL TRAINING FOR EXERCISE PHYSIOLOGY  
 Status: Definitive  
 Code: **7001SPOSCI** (114297)  
 Version Start Date: 01-08-2014  
 Owing School/Faculty: Sports Sciences  
 Teaching School/Faculty: Sports Sciences

Team	Leader
Greg Whyte	Y

**Academic Level:** FHEQ7      **Credit Value:** 40.00      **Total Delivered Hours:** 49.00  
**Total Learning Hours:** 400      **Private Study:** 351

### Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Practical	36.000
Tutorial	12.000

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Practice	AS1	Clinical Practical Exam	50.0	
Exam	AS2	MCQ theory exam	50.0	1.00

### Aims

*The aim of this module is provide the student with the knowledge, technical and critical appraisal skills required to work as an effective clinical physiologist with a cardiology specialty. The module will focus on the practical skills required for the assessment of the cardiology patient at rest and during exercise.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Critically evaluate the effects of exercise on physiological responses and pathophysiological processes in a variety of cardiovascular diseases.
- 2 Screen, assess and stratify patients with cardiovascular disease according to their risk of performing exercise including contraindications.
- 3 Assess blood pressure measurement at rest and during exercise, phlebotomy, and 12-lead ECG at rest and during exercise
- 4 Interpret the basic 12-lead ECG and identify the common ECG abnormalities.
- 5 Perform the variety of exercise stress tests used in the assessment of the cardiac patient and know stop test indicators.
- 6 Explain and assess the skills involved in emergency procedures and management
- 7 Evaluate the classes and mechanisms of pharmacology in cardiac disease and their impact on exercise capacity.
- 8 Explain the role of echocardiography and tilt-table testing in the evaluation of the cardiac patient.

## Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Clinical practical exam	1	2	3	4	5	6	7	8
MCQ	1	2	6	7	8			

## Outline Syllabus

### *COURSE OUTLINE:*

*12-Lead ECG*

*Cardiac Electrophysiology*

*Lead Placement*

*Echocardiography*

*M-Mode*

*2D*

*Doppler / Tissue Doppler*

*Strain and Strain Rate*

*Blood Sampling (Finger Prick, Venapuncture, Cannulation*

*Blood Pressure*

*Orthostatic Challenge*

*ABPI*

*24 hour (ambulatory)Exercise*

*Integrated Cardiopulmonary Stress Testing Protocols*

*Gas Exchange Interpretation*

*Risk Assessment & Stratification*

*Patient Information & Informed Consent*

*Contraindications & Stop Test Indicators*

*Emergency Situations*

*Emergency Plan*  
*AED*  
*Basic Life Support*  
*Tilt-Table Testing*  
*BP and HR Monitoring*  
*Pharmacology and Exercise - Classes of Medication & Mechanisms of Action*  
*Effects on HR, BP, ECG & Exercise Capacity*

## Learning Activities

Students are expected to attend timetabled workshops both on and off campus. Practical skills in the delivery of clinical exercise physiology will be central to this module and application of theory to practice will be debated during workshops some of which will be field based. Students will be required to demonstrate competency in the practical delivery of a wide range of skills. Students should complete the required work related learning tasks as well as the recommended reading to widen their critical knowledge and understanding. The integration of theoretical and practical knowledge should be evidenced in the assessment tasks.

## References

<b>Course Material</b>	Book
<b>Author</b>	American College of Sports Medicine
<b>Publishing Year</b>	2009
<b>Title</b>	Guidelines for Exercise Testing and Prescription.
<b>Subtitle</b>	
<b>Edition</b>	8th
<b>Publisher</b>	Lea & Febeger, Philadelphia
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	Wasserman, K. et al.
<b>Publishing Year</b>	2011
<b>Title</b>	Principles of Exercise Testing and Interpretation
<b>Subtitle</b>	
<b>Edition</b>	5th
<b>Publisher</b>	Williams & Wilkins
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	Hampton, J.R.
<b>Publishing Year</b>	2008
<b>Title</b>	The ECG made easy
<b>Subtitle</b>	
<b>Edition</b>	7th
<b>Publisher</b>	Churchill-Livingstone, Edinburgh
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	M.L.Pollock and D.H.Schmidt, Eds
<b>Publishing Year</b>	1995
<b>Title</b>	Heart Disease and Rehabilitation.
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	Human Kinetics, Champaign, Illinois,
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	American Association of Cardiovascular and Pulmonary Rehabilitation
<b>Publishing Year</b>	2013
<b>Title</b>	Guidelines for Cardiac Rehabilitation and Secondary Prevention Programs.
<b>Subtitle</b>	
<b>Edition</b>	5th
<b>Publisher</b>	Human Kinetics, Champaign, Illinois
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	Williams, M.A.
<b>Publishing Year</b>	1994
<b>Title</b>	Exercise Testing and Training in the Elderly Cardiac Patient.
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	Human Kinetics, Champaign , Illinois
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	Fardy, P.S. et al.
<b>Publishing Year</b>	1999
<b>Title</b>	Training Techniques in Cardiac Rehabilitation
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	Human Kinetics, Champaign , Illinois
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	Rowell, L.B.
<b>Publishing Year</b>	1993
<b>Title</b>	Human Cardiovascular Control
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	Oxford University Press

<b>ISBN</b>	
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<b>Course Material</b>	Book
<b>Author</b>	Froelicher VF and Myers J
<b>Publishing Year</b>	2006
<b>Title</b>	Exercise and the Heart
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	Elsevier Inc. Philadelphia, PA.
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	Winter, E., Jones, A., Davidson, R., Bromley, P. and Mercer, T.
<b>Publishing Year</b>	2007
<b>Title</b>	Sport and Exercise Physiology Testing Guidelines: Exercise and Clinical Testing v. 2 (Bases Sport and Exercise Science)
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	Elsevier Ltd. Edinburgh, UK
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	Whyte, G & Sharma, S
<b>Publishing Year</b>	2010
<b>Title</b>	Practical ECG for Exercise Science and Sports Medicine
<b>Subtitle</b>	
<b>Edition</b>	1st
<b>Publisher</b>	Human Kinetics, Champaign , Illinois
<b>ISBN</b>	

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## Notes

Technical Training for Exercise Physiology offers the student the opportunity to develop the skills required to become a competent and effective clinical physiologist. Theory and practical workshops using internal and external specialists will offer extensive practical exposure to a broad range of skills.