-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

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NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- **0079101** **-Session-1987-88**

-Superclass- **PE**

-Title- **INTRODUCTION TO MEDICAL LABORATORY SCIENCES AND PHYSIOLOGICAL MEASUREMENT**

-DESCRIPTION-

Type and Purpose

A specialist module which introduces the student to medical laboratory sciences and physiological measurement. It is suitable for those who are not employed as technicians but are interested in these paramedical fields.

Preferred Entry Level

69071 Human Physiology or equivalent.

Learning Outcomes

The student should:

1. know the roles of medical laboratory sciences and physiological measurement in human or veterinary medicine;.
2. know the names and functions of the main disciplines of medical laboratory sciences and physiological measurement;
3. perform simple laboratory exercises and physiology experiments relating to several of the main disciplines and record experimental results accurately and legibly;
4. know the purpose and principle underlying the practical exercises carried out for Learning Outcome 3;

5 know some of the risks attendant upon working in medical laboratories and observe appropriate safety precautions.

Content/ Context

Centres offering this module must ensure that in practical work involving the handling, use and testing of blood, accepted and agreed procedures and practices are adopted in accordance with current, appropriate regulations and statutory requirements.

Corresponding to Learning Outcomes 1-5:

1. The fact that Medical Laboratory Scientific Officers in both medical laboratory sciences and physiological measurement assist in the diagnosis and treatment of disease in man or animals and that they are also concerned with research to develop new methods. Medical laboratory sciences involves the analysis of specimens within the clinical laboratories; physiological measurement involves the assessment of patient function using patient-attached equipment within the departments of medicine and surgery.

2. For each laboratory or department, its main functions in relation to patient care: cellular pathology, microbiology, haematology, chemical pathology, blood group serology, immunology, parasitology; cardiology, respiratory investigation, neurology, audiology, renal technology. Examples of routine procedures.

3. Practical exercises.
Selection must include four from group A (1-6) and three from group B (1-5).

Group A:

1. Cellular pathology - preparation of a smear; staining of a smear and a section; constructing a karyotype.

2. Microbiology - identification of bacteria and fungi; antibiotic sensitivity testing.

3. Haematology - examination of a blood film; estimation of cell number; estimation of haemoglobin.

4. Blood group serology - determination of the ABO blood group.

5. Immunology - use of simple antigen-antibody reactions.

6. Parasitology - examination of slides or other preparations.

Group B:

1. Cardiology - measurements of pulse rate and blood pressure; observation of heart sounds; investigation of the effects of exercise on the above.

2. Respiratory investigation - measurements of respiration rate, tidal volume and capacity.

3. Neurology - testing of reflexes, senses and discrimination.

4. Audiology - assessment of hearing by simple tests (air and bone conduction).

5. Renal technology - dialysis experiments to illustrate the simultaneous removal of waste products and the maintenance of body fluids.

6. Context as in exercises selected in 3 above.

7. An awareness of the risks of:
   (i) infection from specimens;
   (ii) physical, chemical and biological hazards in relation to apparatus and reagents used and precautions to minimise such risks.

Suggested Learning and Teaching Approaches

1/2 A combinations of visits, films, group discussion and resource based learning.

3 Practical work alone or in pairs depending on the exercises. Method sheets should be provided but each student should maintain a record of practical work.

4. Resource based learning, group discussion or exposition.

5. Identification of hazards and the production of a code of safe practice through group discussion.

Assessment Procedures

Centres are asked to note the earlier references at the beginning of Content/Context regarding the procedures and practices when doing practical work.

1/2 & 4 Objective and / or short answer tests for each Learning Outcome held as appropriate during the module.

3. Observation of performance in practical work and inspection of laboratory reports combined with oral questioning and the use of checklists which are ticked by the tutor to indicate that the student has fulfilled the requirements of the Learning Outcome as indicated in the content.

5. Oral questioning and observation of behaviour in the laboratory.

Performance Criteria.

Learning Outcomes 1, 2 and 4:

Objective and short answer tests should randomly sample the respective fields of the Learning Outcomes. A small number of items should be carefully chosen for validity and difficulty to ensure that the student can use the information rather than merely recall facts.

The performance required will depend on the extent and difficulty of the tests applied by the tutor. The performance on each test should normally be 80% or better but the exact score depends on the difficulty of the test set and cannot be fully judged in advance.

Learning Outcome 3:

Appropriate checklists could include:

3.1 correct use of equipment (correct selection, application, safe use);

3.2 presentation legible;

3.3 accurate recording of observations /measurements;

3.4 calculations correct;

3.5 graphs used where appropriate, and with axescorrectly labelled;

3.6 valid conclusions drawn.

The student must observe all accepted procedures and practices in accordance with current regulations.

Learning Outcome 5:

The student should satisfy the tutor of his/her knowledge of risks and safe practices, and of his/her consistently safe behaviour in the laboratory.

For Learning Outcomes 1,2,3,4 and 5 the standard to be achieved will be a matter for the professional judgement of the tutor aided by the Council's assessor.

The award of the module depends on the satisfactory achievement of all the Learning Outcomes.