



HEALTH PROFESSIONS COUNCIL OF SOUTH AFRICA
THE PROFESSIONAL BOARD FOR RADIOGRAPHY AND CLINICAL TECHNOLOGY
GUIDELINES FOR THE TRAINING OF
SPIROMETRY TECHNICIANS

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SPIROMETRY TECHNICIANS TRAINING REQUIREMENTS AND GUIDELINES FOR ACCREDITATION

GENERAL INFORMATION

JOB DESCRIPTION: SPIROMETRY TECHNICIAN

The term SPIROMETRY technician is used to describe the basic grade of operation in this field. An SPIROMETRY technician is defined as a person who is capable of carrying out routine SPIROMETRY recordings without direct supervision but not in independent private practice. Routine procedures include photic stimulation, hyperventilation and daytime sleep.

REQUIREMENTS FOR ADMISSION TO TRAINING

The minimum requirement is a Senior Certificate or recognised equivalent qualification. Successful completion of examinations at this level in biology and/or physical science and/or mathematics is desirable but not essential.

STUDENT REGISTRATION

Student - SPIROMETRY Technicians must register with Council by submitting the application form for registration as a student together with the registration fee and required documentation at the commencement with training.

Registration for the full period of training is mandatory for entry to the examination.

EXAMINATIONS

The Education Committee of the Professional Board will appoint a moderator and examiner for the examination for SPIROMETRY technicians on an annual basis. A national examination paper will be drawn up by the examiner and moderator for the annual theoretical and practical examinations to be conducted once per year for trainee SPIROMETRY technicians.

Training units are required to notify the Professional Board by 1 October annually (closing date for the examination) if candidates are eligible for the examination. Applications for registration for the examination must be accompanied by a letter from the training unit indicating that the unit is currently registered as a training unit and complies with all the requirements for the training of SPIROMETRY technicians. In the letter the model of equipment currently being used, the name of the clinical tutors in the unit as well as patient numbers during the period in question should also be stated as well as confirmation that the student had received training and supervision on a regular basis.

Applicants will not retain credit for papers passed during previous examinations. Both the theoretical and practical examination have to be passed during the same examination period.

The letter of the Professional Board in which arrangements regarding the examination are reflected together with the examination fee determined by the Board should reach the Registrar at least two weeks before the examination. Alternatively, a copy of the letter referred to above together with a copy of the bank deposit slip indicating that the examination fee was deposited into the Council's bank account number 0610-000-169 at any branch of ABSA Bank may be emailed to RCTExams@hpcsa.co.za for attention of the Education and Training Division.

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GUIDELINES FOR ACCREDITATION OF SPIROMETRY TRAINING UNITS

APPLICATIONS FOR ACCREDITATION

Units interested in training SPIROMETRY Technicians must apply in writing to the Professional Board via the Education and Training Division. An application for accreditation must include the names and registration numbers of training staff, an indication of the available equipment and infrastructure, patient numbers, three SPIROMETRY recordings recorded during the preceding six months as well as an undertaking that training will comply with the guidelines set out in this document.

An SPIROMETRY unit must use standard SPIROMETRY equipment and perform SPIROMETRY to currently accepted international standards, such as those advocated in the Minimum Technical Requirements for Performing Clinical spirometry of the American Thoracic Society, provided that the following criteria are met:

PERSONNEL STRUCTURE OF THE UNIT:

A trainee technician must work under the direct supervision of:

1. A Graduate Clinical Technologist/Clinical Technologist registered with the Professional Board in the category Neurophysiology and employed on a **full-time** basis by the Unit;

or

2. An SPIROMETRY Technician registered with the Professional Board in that capacity for at least two years, employed on a **full-time** basis by the Unit.

No more than two students should be permitted per registered clinical technologist or technician as set out in 1 and 2 above.

PATIENT POPULATION AND NUMBERS

The unit should serve both adult and paediatric populations and patient numbers should be such that the trainee is able to personally record no less than 300 SPIROMETRY tests during the one-year training period.

CLINICAL TRAINING

Theoretical instruction must take place by means of informal lectures or formal training courses.

Registration for the full period of clinical training is mandatory for entry to the examination.

At the end of the 12-month training period the trainee SPIROMETRY technician shall apply in writing to the Professional Board for permission to do a final examination. This application must be accompanied by a report from the supervising Technologist/Technician confirming that the applicant complies with the training requirements.

The final examination must include a theoretical and a practical examination conducted by the Professional Board. The moderator has to moderate the examination papers prior to the examination to ensure that the entire content of the syllabus is covered.

Once the individual answer sheets have been moderated final marks expressed as a percentage for both the theoretical and the practical examinations will be made available by the Professional Board. Successful applicants will be registered as SPIROMETRY technicians. A pass mark of 50% is required for both the theoretical and practical examinations.

The Education and Training Division will supply further information on receipt of written requests.

TRAINING SYLLABUS AND EXAMINATION

The Training Unit must follow the National approved syllabus contained in this document.

SYLLABUS FOR SPIROMETRY TECHNICIANS

THE RESPIRATORY SYSTEM. ANATOMY AND PHYSIOLOGY

Marieb Elaine N and K Hoehn. Chapter 22

- Functional anatomy of the respiratory system
- Mechanism of breathing
- Gas exchange between the blood, lungs and tissues
- Transport of respiratory gasses by the blood
- Control of respiration
- Respiratory adjustments
- Homeostatic imbalances of the respiratory system

PULMONARY FUNCTION TESTING EQUIPMENT

Mottram Carl D. Chapter 11

- Flow-sensing spirometers
- Peak flowmeters
- Oximeters and Related devices
- Computers for pulmonary testing

QUALITY SYSTEMS IN PULMONARY FUNCTION LABORATORY

Mottram Carl D. Chapter 12

- Quality Manual
- Quality system essentials
- Path of workload

INDICATIONS FOR PULMONARY FUNCTION TESTING

Mottram Carl D. Chapter 1

- Pulmonary function tests
- Indications for pulmonary function testing
- Patterns of impaired pulmonary function
- Preliminaries to patient testing
- Test performance and sequence

SPIROMETRY

Mottram Carl D. Chapter 2

- Vital capacity
- Forced vital capacity, forced expiratory volume, forced expiratory flow
- Flow-volume curve

Peak expiratory flow
 Maximum voluntary ventilation
 Before- and after- bronchodilator studies

REFERENCE VALUES AND INTERPRETATION STRATEGIES

Mottram Carl D. Chapter 13

Selecting and using reference values
 Establishing what is normal
 Pulmonary function testing interpretation

GLOSSARY, SYMBOLS AND ABBREVIATIONS USED IN PULMONARY FUNCTION TESTING (Mottram Carl D).

*References

1. Marieb, Elaine. N. and K. Hoehn. 2013. Human anatomy and physiology, 9th edition. Chapter 22. The respiratory system. Pearson:801-848.
2. Mottram, Carl. D. 2013. Ruppel's manual of pulmonary function testing, 11th edition. Elsevier.

*newer edition suitable study material.

COMPULSORY READING FOR ASSESSMENT PURPOSES

1. Brusasco, V. Carpo, R. and Viegi, G. Series ATS/ERS Task force: Standardization of lung function testing. European Respiratory Journal 2005; 26: 319-338.
2. Standardization of spirometry 2019 update. An official American Thorax Society and European Respiratory Society technical statement.

COMMUNICATION WITH THE PROFESSIONAL BOARD FOR RADIOGRAPHY AND CLINICAL TECHNOLOGY

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