SCHEDULE 2 Regulation 2(1)

Adequate training

Practitioners and operators shall have successfully completed training, including theoretical knowledge and practical experience, in

(1) such of the subjects detailed in section A as are relevant to their functions as practitioner or operator; and

(2) such of the subjects detailed in section B as are relevant to their specific area of practice.

A. **Radiation production, radiation protection and statutory obligations relating to ionising radiations**

1. **Fundamental Physics of Radiation**

1.1 **Properties of radiation**

Attenuation of ionising radiation

Scattering and absorption

1.2 **Radiation hazards and dosimetry**

Biological effects of radiation

Risks/benefits of radiation

Dose optimisation

Absorbed dose, dose equivalent, effective dose and their units

1.3 **Special attention areas**

Pregnancy and potential pregnancy

Infants and children

Medical and biomedical research

Health screening

High dose techniques

2. **Management and Radiation Protection of the Patient**

2.1 **Patient selection**

Justification of the individual exposure

Patient identification and consent

Use of existing appropriate radiological information

Alternative techniques

Clinical evaluation of outcome

Medico-legal issues

2.2 **Radiation protection**

General radiation protection

Use of radiation protection devices

— patient

— personal

Procedures for untoward incidents involving overexposure to ionising radiation

3. **Statutory Requirements and Advisory Aspects**

3.1 **Statutory requirements and non-statutory recommendations**

Regulations
Local rules and procedures
Individual responsibilities relating to medical exposures
Responsibility for radiation safety
Routine inspection and testing of equipment
Notification of faults and DH hazard warnings
Clinical Audit

B. **Diagnostic Radiology, Radiotherapy and Nuclear Medicine**

4. **Diagnostic Radiology**

4.1. **General**

Fundamentals of radiological anatomy
Fundamentals of radiological techniques
Production of X-rays
Equipment selection and use
Factors affecting radiation dose
Dosimetry
Quality assurance and quality control

4.2. **Specialised techniques**

Image intensification/fluoroscopy
Digital fluoroscopy
Computerised Tomography scanning
Interventional procedures
Vascular imaging

4.3. **Fundamentals of Image Acquisition etc**

Image quality v. radiation dose
Conventional film processing
Additional image formats, acquisition, storage and display

4.4. **Contrast Media**

Non-ionic and ionic
Use and preparation
Contra-indications to the use of contrast media
Use of automatic injection devices

5. **Radiotherapy**

5.1. **General**

Production of ionising radiation
Use of radiotherapy —
benign disease
malignant disease
external beam

brachytherapy

5.2. **Radiobiological Aspects for Radiotherapy**

Fractionation

Dose rate

Radiosensitisation

Target volumes

5.3. **Practical aspects for radiotherapy**

Equipment

Treatment planning

5.4. **Radiation Protection Specific to Radiotherapy**

Side effects — early and late

Toxicity

Assessment of efficacy

6. **Nuclear Medicine**

6.1. **General**

Atomic structure and radioactivity

Radioactive decay

The tracer principle

Fundamentals of diagnostic use

Fundamentals of therapeutic use

dose rate

fractionation

radiobiology aspects

6.2. **Principles of Radiation Detection, Instrumentation and Equipment**

Types of systems

Image acquisition, storage and display

Quality assurance and quality control

6.3. **Radiopharmaceuticals**

Calibration

Working practices in the radiopharmacy

Preparation of individual doses

Documentation

6.4. **Radiation Protection Specific to Nuclear Medicine**

Conception, pregnancy and breastfeeding

Arrangements for radioactive patients

Disposal procedures for radioactive waste