

ORGANISATION OF EXAMINATIONS

INTRODUCTION

As stated in article 5.11 of the 'Decree basic safety standards radiation protection' (Dutch: '*Besluit basisveiligheidsnormen stralingsbescherming*' or *Bbs*) and chapter 5.4, articles 5.25 and 5.26 of the 'Regulations basic safety standards radiation protection' (Dutch: '*Regeling basisveiligheidsnormen stralingsbescherming*' or *Rbs*) institutions that offer an education in the field of radiation protection, must be accredited by the Authority of Nuclear Safety and Radiation Protection (Dutch: '*Autoriteit Nucleaire Veiligheid en Stralingsbescherming*' or ANVS).

Both Maastricht University (UM) and the Academic Hospital Maastricht (azM) are accredited institutions for radiation protection courses. UM is accredited for the course 'Radiation Protection Officer – Dispersible Radioactive Materials level D' (Dutch: '*Toezichthoudend Medewerker Stralingsbescherming – Verspreidbare Radioactieve Stoffen niveau D*' or TMS-VRS D), while azM is accredited for the course 'Radiation protection for Medical Specialists who use X-ray devices' (Dutch: '*Stralingshygiëne voor Medisch Specialisten die gebruik maken van Röntgenapparatuur*' or SMSR).

To obtain accreditation, the institution must meet certain quality standards to ensure that proper education will be offered. This concerns both content as well as organisation, under the responsibility of an educational officer.

Part of the quality criteria is the organisation of the examinations and the administration of the diplomas that are granted. These aspects must be anchored in a procedure.

This procedure describes the way both institutions fulfil the governmental demands concerning examinations, as well as the granting of diplomas.

AIM

The aim of this procedure is to formalise the procedure and organisation regarding the examination of the accredited radiation protection courses that are offered within the Complex License Randwyck.

LEGAL CONTEXT

The *Bbs* (article 5.11) and the *Rbs* describe the following requirements for quality with regards to the accredited courses and the handling of examinations (article 5.25):

A course followed at an accredited institution is anchored by adequate procedures with regards to a proper examination regime if:

- a. examination regulations have been established in which at least the following aspects are formalised:
 1. the constitution of the examination committee, with regards to the required expertise in the field of radiation protection and didactics;
 2. the involvement of an official of the ANVS or the Ministry of Health, Welfare and Sport (Dutch: '*Ministerie van Volksgezondheid, Welzijn en Sport*' or VWS) in case it concerns a medical course;
 3. the duration and way of examination;
 4. the confidentiality of the exam;
 5. the norm for marking the examination as passed, to be retaken or denied;
 6. regulations for practical assignments;
 7. an appeal procedure and complaint procedure concerning the examination;
 8. rules for subjecting candidates with dyslexia or an employment disability to the examination;
- b. the responsible educational officer must set up a report following each examination;
- c. the institution must provide each candidate with the examination regulations;
- d. the written examination must be kept available for at least a year after the examination date, and candidates must be granted access to their work on their request.

An educational program from an accredited institution has adequate procedures to guarantee the quality of the diplomas, which at least entails that:

- a. the institutions has established a format for the diploma of the program or course;
- b. granted diplomas are signed by the president of the examination committee and by the accredited institution;
- c. the institution must have an adequate and up to date record of participants, signed off score lists and diplomas that were handed out.

QUALITY ASSURANCE

Examination committee and examination regulations

For the radiation protection courses, an examination committee has been installed. The committee oversees the quality of practical assignments and examinations, bears responsibility for the assessment thereof, lays down the norm for the marking of the exams and ensures that diplomas are only granted to candidates who fully meet the previously set standards.

The committee also oversees a just correction of written examination, which follows the procedure as described in this procedure.

The constitution of the examination committee and the required level of expertise of the members, as well as their duties, responsibilities and competences, are formalised in examination regulations. These regulations fulfil the legal requirements as stated in the paragraph 'Legal context' of this document (page 1-2).

The responsible educational officer (Dutch: 'opleidingsverantwoordelijke'), on behalf of the boards of the accredited institutions, lays down the examination regulations. The regulations are handed to each course participant, prior to the start of the program.

Exam report

Following each exam, an exam report is drawn up by, or under the responsibility of, the responsible educational officer. This report contains at least the following subjects:

- as a supplement: the examination and the norm for correction and marking;
- possible details or conclusions with regards to the examination, as reported by the supervisor;
- a survey of the response scores per question;
- possible suggestions or advice for adjustments in the examination or the procedure followed with regards to the examination;
- an evaluation of the course and the examination, based on evaluation forms that have been filled out by course participants.

This report is kept available for at least 5 years.

Composition and assessment of examination and norm for correction

An exam and the corresponding norm for correction are drawn up by, or under the responsibility of, the responsible educational officer, at least four weeks in advance of the intended examination date. These are sent to the members of the examination committee per e-mail, encrypted with a password, so they can assess both documents. The password is sent per separate e-mail message. After the assessment of the examination committee, which should take place within 10 working days, both documents are subject to final changes, based on the judgement of the committee. The responsible educational officer appoints revisers for the examination, usually within the radiation protection unit. A supervisor, appointed by the responsible educational officer, oversees a proper practice during the time the examination is taken.

TAKING THE EXAMINATION

Ensuring confidentiality of examination questions

All (digital) examination questions are stored centrally on a server that only members of the radiation protection unit have access to. Members of the examination committee are asked to remove local files from their computers, as well as destroy any printed documents, after the assessment has been completed.

Ensuring objective correction of examinations: procedure

In the week of the exam, one copy of the examination per candidate is printed. Together with any answer forms, they are stored in individual envelopes that are marked with examination numbers. The lot of envelopes, a list of participants and their corresponding examination numbers, as well as a form for the supervisor to write down any specific comments or events, is collected in an envelope that stays closed until the moment of the examination.

On the day of the examination, this closed envelope is handed over to the supervisor, by or under the responsibility of the responsible educational officer.

The supervisor opens the envelope only in the presence of the examination candidates. Based on the list with names and examination numbers, the supervisor hands out the envelope with the correct examination number to each individual, who then signs the list with names and number as a confirmation of their presence and a check of their identity and corresponding examination number. Candidates are instructed to refrain from writing names or initials on any parts of the examination.

After the exam, the examination as worked out by each candidate, any answering forms or scrap papers, as well as the form intended for the supervisor to write down any observations on, are collected in an envelope that is closed at the spot. The list of candidates and their examination numbers are put in a separate, second envelope. The supervisor or someone ordered by the supervisor, hands the envelopes over in person to the responsible educational officer or the appointed substitute.

The responsible educational officer takes care that the envelope with the written examinations are handed over to the appointed reviser, not being the supervisor, and the separate storage of the list with examination numbers.

Storage time of written examinations

After correction the written paper versions of the exams are stored for a year, after which they are destroyed.

CORRECTION AND MARKING OF THE EXAMINATION

The responsible educational officer appoints revisers prior to the examination. Correction takes place per the previously by the examination committee assessed norm. In case of doubt, when correcting individual examinations, the responsible educational officer is consulted, who, if necessary, will seek advice from the president of the examination committee.

Correction and marking of the exam will always take place based on examination number, and never based on a name. This ensures that the process will be carried out objectively. After all examinations have been assessed, the results will be connected to the individual, by means of the list of participants and their allotted examination numbers. The responsible educational officer signs off the summary of results per participant. Subsequently, candidates will be informed of their results per e-mail message.

Perusal and disagreements

After announcing the results of the examination, participants are given the opportunity of perusal of their written examination, during a period of 6 weeks after the examination date. The reviser will be present during this perusal, and all documents stay with the reviser. In case a participant disagrees with the marking of their examination, they may lodge a written appeal with the examination committee. The procedure with regards to perusal and disagreements is formalised in the examination regulations

GRANTING OF DIPLOMAS

When an examination result meets the set criteria for a diploma, and after the term for perusal has passed as stated in the examination regulations, the candidate is provided with a diploma. The diploma is signed by the president of the examination committee and the responsible educational officer on behalf of the accredited institution. The diploma is handed out to the candidate together with a list of marks, that has been signed by the responsible educational officer.

Storage term for diplomas

Digital copies of signed diplomas and lists of marks, are stored for a period of 50 years with the radiation protection unit. The way these data are stored, has been formalised in the procedure 'Data management educational programs radiation protection'.

LIST OF ABBREVIATIONS

| Dutch | | English |
|-----------|--|--|
| ANVS | Autoriteit Nucleaire Veiligheid en Stralingsbescherming | - Authority for Nuclear Safety and Radiation Protection |
| azM | Academisch Ziekenhuis Maastricht | - Academic Hospital Maastricht |
| Bbs | Besluit basisveiligheidsnormen stralingsbescherming | - - |
| Rbs | Regeling basisveiligheidsnormen stralingsbescherming | - - |
| SMSR | stralingshygiëne voor medisch specialisten die gebruik maken van röntgentoestellen | - radiation safety for medical specialists who use X-ray devices |
| TMS-VRS D | toezichhoudend medewerker stralingsbescherming – verspreidbare radioactieve stoffen niveau D | - radiation protection officer – dispersible radioactive materials level D |
| UM | Universiteit Maastricht | - Maastricht University |
| VWS | Ministerie van Volksgezondheid, Welzijn en Sport | - Ministry of Health, Welfare and Sport |

REFERENCES

- Besluit basisveiligheidsnormen stralingsbescherming: <https://wetten.overheid.nl/BWBR0040179/2018-07-01>
- Regeling basisveiligheidsnormen stralingsbescherming: <https://wetten.overheid.nl/BWBR0040509/2019-02-15>
- Procedure 'Data management educational programs radiation protection'