

EUROPASS DIPLOMA SUPPLEMENT

TITLE OF THE DIPLOMA (ES)

Técnico Superior en Radioterapia y Dosimetría

TRANSLATED TITLE OF THE DIPLOMA (EN)⁽¹⁾

Higher Technician in Radiotherapy and Dosimetry

(1) This translation has no legal status.

DIPLOMA DESCRIPTION

The holder of this diploma will have acquired the General Competence with regard to:

Applies treatments with ionizing radiations under medical prescription, using equipment provided with sealed radioactive sources or radiation generators, applying general and specific radioprotection regulations, and attending patients during their stay in the unit, as well as carrying out procedures of radiation protection in hospitals, following regulations on quality assurance and the protocols established in the health care unit.

Within this framework, the PROFESSIONAL MODULES and their respective LEARNING OUTCOMES acquired by the holder are listed below:

“Patient Care”.

The holder:

- Identifies the workplace, relating it to the structure of the health sector.
- Applies patient reception protocols in the diagnostic or treatment unit according to the action plan to be developed.
- Applies communication and psychological support techniques, identifying people's characteristics.
- Observes physical and clinical parameters, relating them to the patient's general condition.
- Carries out the procedures to prepare the patient for the application of the examination technique or the treatment prescribed, acting in accordance with the protocol described by the unit.
- Solves eventualities in equipment or devices that the patient carries, according to the examination technique and the protocol of the unit.
- Applies techniques for the administration of contrasts and radiopharmaceuticals, relating them to the route of administration according to the protocol of the unit.
- Applies guidelines on infectious disease prevention and protection, identifying risks and preventive measures.

“Physical Foundations and Equipment”.

The holder:

- Determines the characteristics of ionizing and non-ionizing radiations and matter waves, describing their diagnostic and therapeutical use.
- Characterises the equipment of conventional radiology, identifying components and applications.
- Processes radiographic images, describing characteristics and applications of receptors.
- Characterises computed tomography (CT) equipment, identifying components and applications.
- Characterises magnetic resonance (MR) equipment, identifying components and applications.
- Characterises ultrasonography equipment, identifying components and applications.
- Carries out tasks for managing health data, diagnostic images and therapeutical treatments, interpreting clinical information standardization.

“Anatomy through Images”.

The holder:

- Locates anatomical structures, applying conventional systems of body topography.
- Analyses clinical images, relating reading protocols to the technique used.
- Recognizes the anatomical structures of the musculoskeletal system, interpreting diagnostic images.
- Identifies the structure, the operation and the diseases of the nervous system and the sense organs, relating them to diagnostic images.
- Recognizes the structure, the operation and the diseases of the cardiovascular and respiratory systems, relating them to diagnostic images.
- Identifies the structure, the operation and the diseases of the digestive and urinary systems, relating them to diagnostic images.
- Recognizes the structure, the operation and the diseases of the endocrine and metabolic system and the reproductive system, relating them to diagnostic images.

“Radiation Protection”.

The holder:

- Applies procedures for radiation detection, associating them with surveillance and control of internal and external radiation.
- Describes in detail the interaction between ionizing radiations and the biological medium, describing the effects that these radiations produce.
- Applies protocols for operational radiation protection, based on general protection criteria and types of exposure.
- Characterises medical radiation facilities of nuclear medicine, radiotherapy and radiodiagnosis, identifying radiation risks.
- Applies management procedures of radioactive material, associating operational protocols with the type of installation.
- Defines actions for applying the quality assurance plan, relating it to each area and type of radiation facility.
- Applies emergency plans in radiation facilities, identifying radiation accidents.

“Treatment Simulation”.

The holder:

- Prepares moulds and complements used in radiotherapy, selecting production materials and techniques.
- Applies simulation procedures to teletherapy for tumours in the central nervous system and in the neck and the head, relating them to possible locations.
- Applies simulation procedures to teletherapy for tumours in thorax, abdomen and pelvis, relating them to possible locations.
- Applies simulation procedures to teletherapy for lymphomas, and tumours in limbs and in children, relating them to possible locations.
- Applies simulation procedures in intraoperative radiotherapy (IORT) and radiotherapy for emergency situations, relating them to possible locations.
- Applies simulation procedures in intracavitary, intraluminal or surface brachytherapy, relating them to possible locations.
- Describes procedures for labour risk prevention and environmental protection, assessing risk situations, and managing the most usual measures that present his/her professional activity.

“Physical and Clinical Dosimetry”.

The holder:

- Defines the equipment required to carry out physical dosimetry, describing its operation and applications.
- Defines the procedure to carry out physical dosimetry in radiotherapy, based on quality criteria in radiotherapy.
- Applies radiobiology principles, justifying the use of ionizing radiations in radiotherapy treatments.
- Carries out clinical dosimetry plans for teletherapy treatments, relating them to prescription.
- Carries out clinical dosimetry plans for brachytherapy treatments, relating them to prescription.

“Treatments with Teletherapy”.

The holder:

- Determines the characteristics of the equipment used in external radiotherapy, describing its operation.
- Determines the installation of external radiotherapy, relating the basic requirements for its operation in maximum safety conditions.
- Identifies treatment techniques used in external radiotherapy, relating them to their requirements.
- Applies treatments to tumours in the central nervous system, according to medical prescription, identifying the concerning procedures.
- Applies treatments to tumours located in the thoracic region, according to medical prescription, identifying the concerning procedures.
- Applies treatments to tumours in abdomen and pelvis, according to medical prescription, identifying the concerning procedures.
- Applies treatments to tumours in the head and the neck, according to medical prescription, identifying the concerning procedures.
- Applies treatments to hematologic and lymphoid tumours, bone sarcomas and soft tissue tumours, according to medical prescription, identifying the concerning procedures.

“Treatments with Brachytherapy”.

The holder:

- Determines the characteristics of the different types of brachytherapy, differentiating their technical and instrumental requirements.
- Characterises the installation and its elements, relating safety requirements to the type of brachytherapy.
- Applies procedures for handling radioactive sources, identifying maximum biosafety criteria.
- Applies treatments of intracavitary and intraluminal brachytherapy, according to medical prescription, identifying the concerning procedures.
- Applies treatments of interstitial and surface brachytherapy, according to medical prescription, identifying the concerning procedures.
- Characterises the treatments with metabolic brachytherapy, applying maximum biosafety criteria.

“Project on Radiotherapy and Dosimetry”.

The holder:

- Identifies the needs of the production sector, relating them to the standard projects that may satisfy them.
- Designs projects related to the competences described in the diploma, including and developing their constituting stages.
- Plans the project implementation, determining the intervention plan and associated documentation.
- Defines the procedures for the monitoring and control of the project implementation, justifying the selection of variables and instruments used.

“Professional Training and Guidance”.

The holder:

- Selects job opportunities, identifying the different possibilities of labour integration, and the alternatives of lifelong learning.
- Applies teamwork strategies, assessing their effectiveness and efficiency on the achievement of the company's goals.
- Exercises rights and complies with the duties derived from labour relationships, recognising them in the different job contracts.
- Determines the protective action of the Spanish Health Service in view of the different covered eventualities, identifying the different types of assistance.
- Assesses risks derived from his/her activity, analysing job conditions and risk factors present in his/her labour setting.
- Participates in the development of a risk prevention plan in a small enterprise, identifying the responsibilities of all agents involved.
- Applies protection and prevention measures, analysing risk situations in the labour setting of the Higher Technician in Radiotherapy and Dosimetry.

“Business and Entrepreneurial Initiative”.

The holder:

- Recognises skills related to entrepreneurial initiative, analysing the requirements derived from job positions and business activities.
- Defines the opportunity of creating a small enterprise, assessing the impact on the performance setting and incorporating ethic values.
- Carries out the activities for the setting-up and implementation of a company, choosing the legal structure and identifying the associated legal obligations.
- Carries out basic administrative and financial management activities of an SME, identifying the main accounting and tax obligations and filling in documentation.

“On the Job Training”.

The holder:

- Identifies the structure and organization of the company, relating it to the type of service provided.
- Applies ethical and work habits in the development of his/her professional activity, according to the characteristics of the job and the procedures established by the enterprise.
- Dynamically participates in the operation and organization of the unit of radiotherapy, together with the rest of the multidisciplinary team of the workplace.
- Provides medical and technical assistance to the patient during his/her stay in the unit of radiotherapy oncology, showing discretion and respectful behaviour.
- Participates in obtaining images by means of simulation equipment, and defines volumes.
- Creates moulds and complements used in radiotherapy, selecting materials and production techniques.
- Carries out clinical and dosimetric plans for teletherapy or brachytherapy treatments according to medical prescription.
- Checks by means of physical dosimetry that the radiation dose generated by radiotherapy equipment is correct and is inside the limits allowed.
- Applies teletherapy treatments based on the equipment and the technique used, in conditions of biosafety and under the supervision of a doctor.
- Takes part in brachytherapy treatments according to the technique used, in conditions of biosafety and under the supervision of a doctor, handling appropriate equipment and materials for each type of treatment.
- Applies procedures for radiation protection, according to radiation-emitting units, measures and equipment used.

RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE DIPLOMA

The Higher Technician in Radiotherapy and Dosimetry works in the health sector, in public institutions and bodies and in private enterprises, in radiotherapy oncology units, in hospitals radiophysics services, in technical units of radiation protection and in research centres.

S/He works under the supervision of the corresponding doctor and the supervisor of the facility, with the corresponding accreditation of radiation installations operator awarded by the Spanish Nuclear Safety Council.

Her/His professional activity is regulated by the State Health Administration.

The most relevant occupations or jobs are the following:

- Higher Technician in radiotherapy.
- Expert technician in radiotherapy.
- Staff assistant in radiation protection services.
- Medical radioelectrology equipment sales representative..

AWARD, ACCREDITATION AND LEVEL OF THE DIPLOMA

Name of the body awarding the diploma on behalf of the King of Spain: Spanish Ministry of Education or the different Autonomous Communities according to their areas of competence. The title has academic and professional validity throughout Spain.

Official duration of the education/ training leading to the diploma: 2000 hours.

Level of the diploma (national or international)

- NATIONAL: Non-University Higher Education
- INTERNATIONAL:
 - Level 5 of the International Standard Classification of Education (ISCED5).
 - Level 5 of the European Qualifications Framework (EQF 5).

Entry requirements: Holding the Certificate in Post-Compulsory Secondary Education (Bachillerato) or holding the corresponding access test.

Access to next level of education/training: This diploma provides access to university studies.

Legal basis. Basic regulation according to which the diploma is established:

- Minimum teaching requirements established by the State: Royal Decree 772/2014, of 12 September, according to which the diploma of Higher Technician in Radiotherapy and Dosimetry and its corresponding minimum teaching requirements are established.

Explanatory note: This document is designed to provide additional information about the specified diploma and does not have any legal status in itself.

COURSE STRUCTURE OF THE OFFICIALLY RECOGNISED DIPLOMA

PROFESSIONAL MODULES IN THE DIPLOMA ROYAL DECREE	CREDITS ECTS
Patient Care.	9
Physical Foundations and Equipment.	13
Anatomy through Images.	13
Radiation Protection.	9
Treatment Simulation.	9
Physical and Clinical Dosimetry.	9
Treatments with Teletherapy.	13
Treatments with Brachytherapy.	9
Project on Radiotherapy and Dosimetry.	5
Vocational Training and Guidance.	5
Business and Entrepreneurial Initiative.	4
On the Job Training.	22
	TOTAL CREDITS
	120
OFFICIAL DURATION (HOURS)	2000

* The minimum teaching requirements shown in the table above comprise 55% official credit points valid throughout Spain. The remaining 45% corresponds to each Autonomous Community and can be described in the **Annex I** of this supplement.

INFORMATION ON THE EDUCATION SYSTEM

