ETRAP
27-30 June 2023
Groningen, The Netherlands

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Federal Authority for Nuclear Regulation

Developments in Radiation Protection Education, Training and Qualifications in the UAE

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Outline

- Introduction
- EduTA Appraisal Mission
- Steering Committee
- UAE National Strategy for ETQ in Radiation Protection
- UAE Temporary List of Qualified Experts in Radiation Protection
- UAE National Workshops
- Development of National Qualifications

Introduction

The UAE started a **Nuclear Programme**, in 2018-2019, pledging to adhere to the best international practices, and to follow the IAEA standard and guidance, partnering with responsible nations around the world

As a result, the UAE and its Nuclear Regulator, the Federal Authority for Nuclear Regulation (FANR), have welcomed several IAEA review and follow-up Missions and advisory services, since the start of the Nuclear Programme.

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EduTA Appraisal Mission

In February 2017

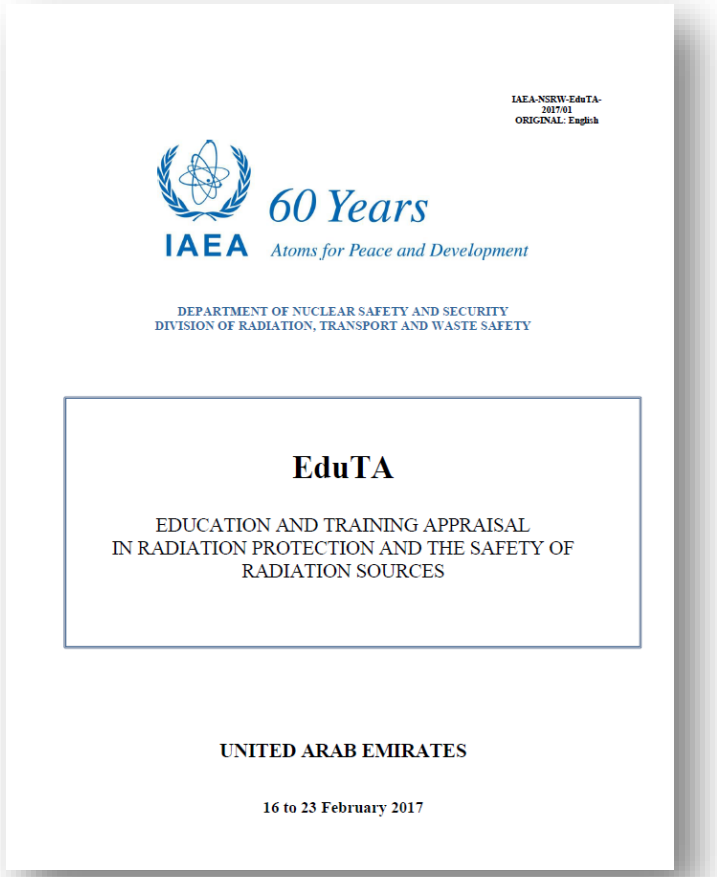
EduTA Appraisal Mission

The Recommendations and Suggestions from the EduTA Mission:

1. Definition of requirements related to the Qualified Expert and the Radiation Protection Officer, and their roles, responsibilities and interface.

2. Development of ETQ requirements for Occupationally Exposed Workers, Emergency Workers, and Workers employed in existing exposure situations.

3. Development of a National Strategy for ETQ in Radiation Protection.


IAEA-NSRW-EduTA-2017/01
ORIGINAL: English

60 Years
IAEA Atoms for Peace and Development

DEPARTMENT OF NUCLEAR SAFETY AND SECURITY
DIVISION OF RADIATION, TRANSPORT AND WASTE SAFETY

EduTA

EDUCATION AND TRAINING APPRAISAL
IN RADIATION PROTECTION AND THE SAFETY OF
RADIATION SOURCES

UNITED ARAB EMIRATES

16 to 23 February 2017

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In 2017, as follow-up to the EduTA Mission, a few fundamental decisions on the way forward were made:

- Establishment of the National Strategy Steering Committee
- Policy and Strategy
- National Qualifications
- Five Radiation Protection Occupations

Established in the form of a Working Group (WG) in the frame of the "Radiation Protection Committee (RPC) in the State"

Composed at its creation, of around 20 governmental Stakeholders.

The WG had its kick-off meeting on the 04-MAY-2017, and held on the 30-MAY-2023 its 47th meeting.

- Leading the development of the National Strategy (NS)
- Included other actions related to the EduTA Mission outcome, to prepare Temporary criteria for the recognition of Qualified Experts.

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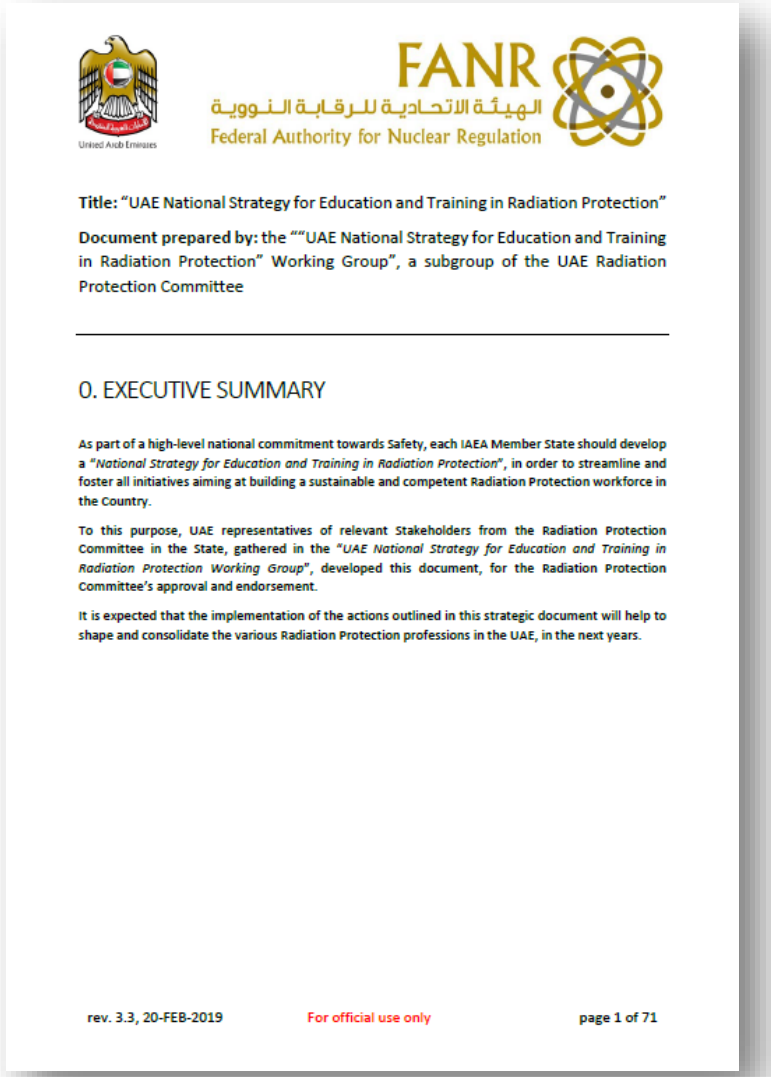
UAE National Strategy for ETQ in Radiation Protection



United Arab Emirates

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Title: "UAE National Strategy for Education and Training in Radiation Protection"

Document prepared by: the ""UAE National Strategy for Education and Training in Radiation Protection" Working Group", a subgroup of the UAE Radiation Protection Committee

0. EXECUTIVE SUMMARY

As part of a high-level national commitment towards Safety, each IAEA Member State should develop a "*National Strategy for Education and Training in Radiation Protection*", in order to streamline and foster all initiatives aiming at building a sustainable and competent Radiation Protection workforce in the Country.

To this purpose, UAE representatives of relevant Stakeholders from the Radiation Protection Committee in the State, gathered in the "*UAE National Strategy for Education and Training in Radiation Protection Working Group*", developed this document, for the Radiation Protection Committee's approval and endorsement.

It is expected that the implementation of the actions outlined in this strategic document will help to shape and consolidate the various Radiation Protection professions in the UAE, in the next years.

rev. 3.3, 20-FEB-2019 For official use only page 1 of 71

Development of the UAE National Strategy for ETQ in Radiation Protection

Identification and collection of E&T needs

Development of an E&T programme

Implementation

Review of its effectiveness

2017	Guidance is provided by the IAEA on how to perform the assessment of needs, an evaluation done adjusting the instruments offered in the EduTA Questionnaire and in [6] to the specific UAE circumstances.
2018	A second IAEA Expert Mission took place at FANR, and the draft NS rev.0.8 was revised and discussed
2019	After the NS approval from the RPC, new WG's Terms of Reference were submitted and approved to the RPC, which indicated a mandate to already start the implementation of the NS.
2024	Review the NS, as it completed the 5 years cycle.

UAE National Strategy for ETQ in Radiation Protection

1. Three tiers for QEs, RPOs and EWs, and three activity sectors

Similarly to the QEs' and to the RPOs' structure, it has been considered convenient to classify EWs in "levels" and "activity sector" categories:

1. EW Level 1 (EW-1): involved in facilities characterised by lowest radiological risks, across all Sectors (industrial, research, medical, etc.)
2. EW Level 2: involved in activities characterised by higher radiological risks, with a further specialisation as (EW-2A), for the Medical Sector and (EW-2B), for all the other Sectors
3. EW Level 3: involved in activities characterised by highest radiological risks, with a further specialisation as (EW-3A) for the Medical Sector, (EW-3B) for the Nuclear Sector, and (EW-3C) for all the remaining Sectors

UAE National Strategy for ETQ in Radiation Protection

2. Two levels for Emergency Workers

Unlike other Professionals', for which it has been possible to define a sector of activity and a "level" of radiological risk, this approach was not applicable to emergency exposure situations: it was found useful, taking into account the advice provided by the IAEA, to classify EmWs in two broad categories, depending on the main activities performed in the field:

1. EmW Level 1 (EmW-1): first responders directly involved in the initial activities on site, during the accident, across all sectors (industrial, nuclear, research, medical, etc.)
2. EmW Level 2 (EmW-2): involved in subsequent activities of assessment and decontamination

UAE National Strategy for ETQ in Radiation Protection

3. Four categories of Medical Physicists

Four categories of MPs shall be available in the UAE:

1. **MP-DR**: Medical Physicist for diagnostics applications, familiar with diagnostic radiation-generating equipment and experience in developing and performing oversight of quality assurance for diagnostic radiation-generating equipment
2. **MP-NM**: Medical Physicist for Nuclear Medicine, expert in developing and performing oversight of quality assurance for nuclear medicine equipment
3. **MP-RT**: Medical Physicist for Radiotherapy with training and work experience in clinical radiation facilities that provide high-energy external beam radiation therapy with photons and electrons
4. **MP-ASST**: Assistant Medical Physicist, freshly graduated and supporting MPs in any of the previous categories[5]

UAE National Strategy for ETQ in Radiation Protection

4. Development of MSc and BSc Degrees in RP and a specialization in MP

The Strategy for RP Education must therefore include:

- The development and establishment of MSc and BSc curricula in the UAE with a comprehensive Radiation Protection content, which will be considered fulfilling the potential education requirements for QEs' and RPOs' qualification
- The development and establishment of post-graduate educational specialization in Medical Physics, which will be considered fulfilling the potential education requirements for MPs' qualification

UAE National Strategy for ETQ in Radiation Protection

5. Registered Training Providers (RTPs) scheme via National Qualification Center

Once the full UAE RP qualification system will be in place, RTPs (Governmental or Commercial) will be able to provide both training and the corresponding UAE Qualifications for RP Professionals. Other TPs who are not RTPs will still be able to provide training conforming to the UAE NOSs, but would not be able to issue the qualification.

The NQA is the Federal Authority responsible for issuing the status of "Registered Training Provider", and its corresponding documents, namely [22], indicate the process that any TP should follow in order to be accepted as a RTP.

UAE National Strategy for ETQ in Radiation Protection

6. The development of a Post Graduate Education Course (PGEC) in RP, with the support of the IAEA

The National Strategy includes a plan to discuss the development of a comprehensive training programme, which builds on the existing facilities and resources in RP in the UAE, and which may be recognised as a Regional Training Centre by the IAEA for the provision of the "**Post Graduate Educational Course in Radiation Protection**" (PGEC).

The Post Graduate Educational Course in Radiation Protection (PGEC), whose syllabus is presented in [24], is developed around the following topics

- Review of fundamentals
- Quantities and measurements

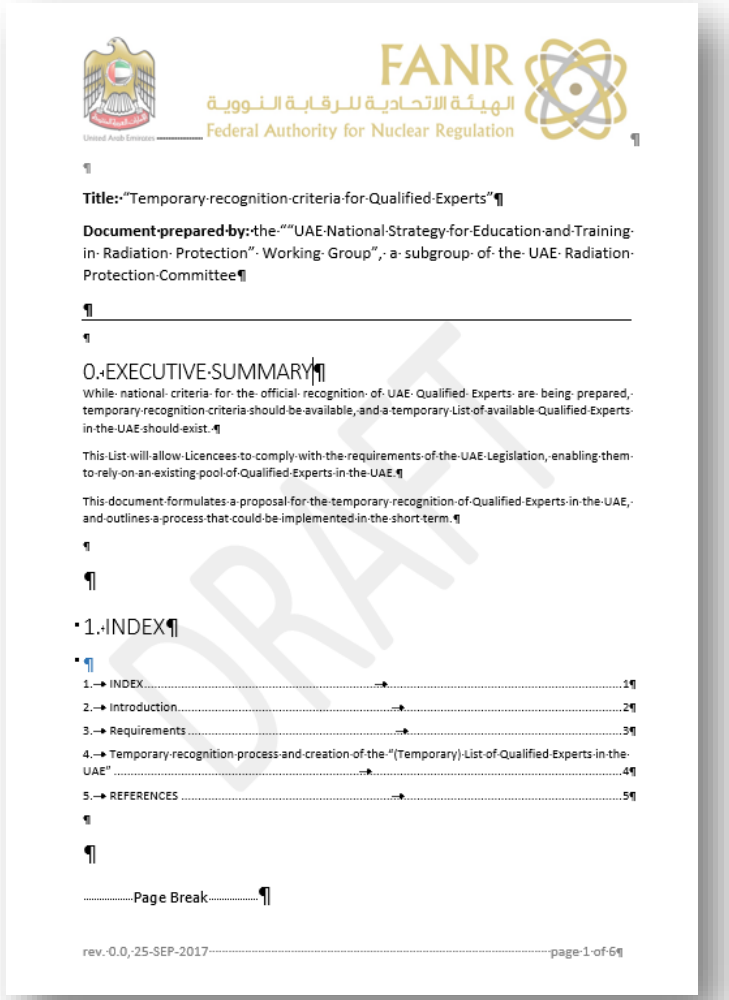
UAE Temporary List of Qualified Experts in Radiation Protection

Creation of the "UAE Temporary List of Qualified Experts in Radiation Protection"

A Suggestion from the EduTA Mission's conclusions:

A survey should be carried out to identify existing potential qualified experts that could form a pool of expertise for a transition period until the recognition scheme is operational

the WG established criteria for the temporary Qualification of Qualified Experts in Radiation Protection in the UAE.



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Title: "Temporary recognition criteria for Qualified Experts"

Document prepared by: the ""UAE National Strategy for Education and Training in Radiation Protection" Working Group", a subgroup of the UAE Radiation Protection Committee

0. EXECUTIVE SUMMARY

While national criteria for the official recognition of UAE Qualified Experts are being prepared, temporary recognition criteria should be available, and a temporary List of available Qualified Experts in the UAE should exist.

This List will allow Licencees to comply with the requirements of the UAE Legislation, enabling them to rely on an existing pool of Qualified Experts in the UAE.

This document formulates a proposal for the temporary recognition of Qualified Experts in the UAE, and outlines a process that could be implemented in the short term.

1. INDEX

Page Break

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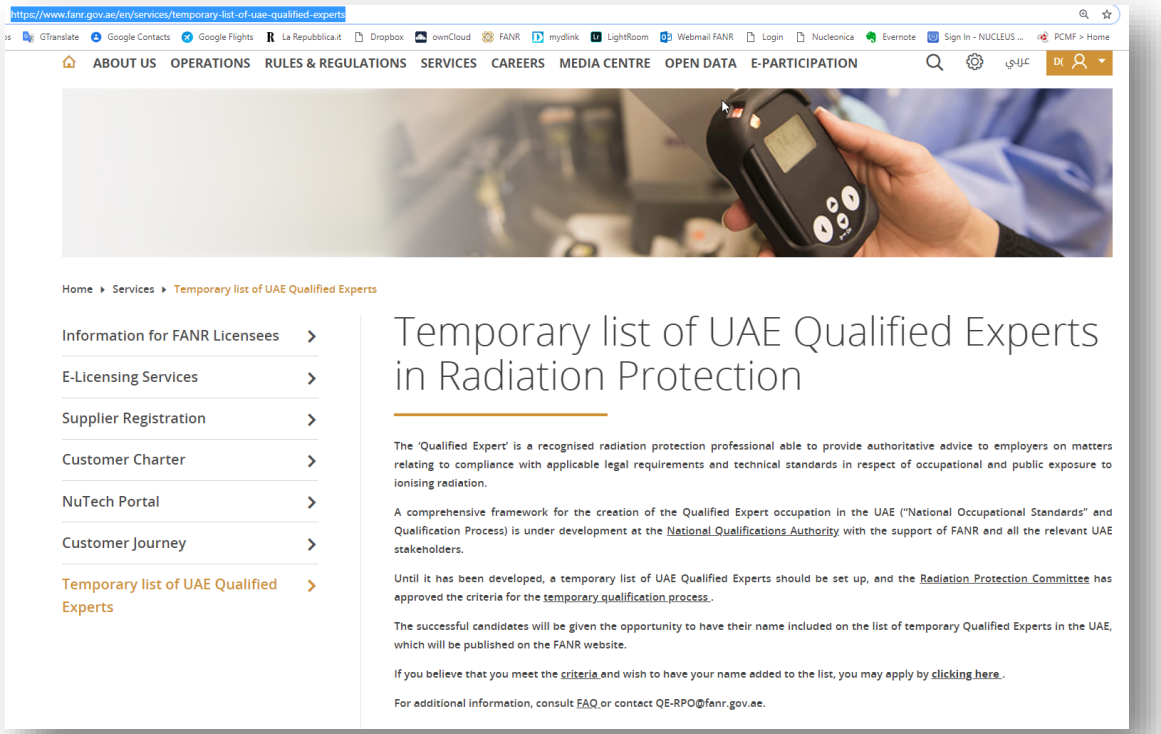
"UAE Temporary List of Qualified Experts in Radiation Protection" Implementation

- An open call for spontaneous proposals from FANR
- Candidates send their candidature
- Candidatures are examined over Four Criteria:
  - ✓ Educational
  - ✓ Work experience
  - ✓ Certification
  - ✓ Residence
- Creation of a public list of temporarily- qualified UAE QEs



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"UAE Temporary List of Qualified Experts in Radiation Protection"

32 Temporary Qualified Experts are listed on FANR website

- Each WG Member has access to Candidates' documentation, via a **secured SharePoint website**.
- Each Member has to undergo a special **security clearance**, both to access confidential documentation, and to handle private data.

Ensure basic criteria are met, and **anonymizes all documents** submitted.

Each WG Member access to the redacted files and is requested to prepare their **assessment of the candidates**

During plenary meetings, each file is **collectively reviewed and discussed**

Candidates can be **accepted, rejected, or kept on hold**, while collecting clarifications and additional information

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UAE National Workshops

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UAE National Workshops

To clarify the roles, responsibilities and interface between Professionals, FANR has organized three National Workshops, which took place in 2015, 2017 and 2019, with the fourth one being delayed by the pandemic.

- 50+ participants
- 20+ entities
- 5 days of works
- 30 presentations
- 11 discussion groups

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Second National Workshop on: **"Roles and responsibilities for Qualified Experts and Radiation Protection Officers in the UAE"**

19-23 November 2017

(final agenda)

Date/time	Programme	Lecturers/Participants	Scope
		Sunday 19th November 2017	
08.00-09.00	Registration	**All WS Participants**	Participants to the Workshop are registered and have access to the Workshop's Venue
09.00-09.15	Opening and welcome address (FANR)	**Aayda Al Shehhi,** FANR Director of the Radiation Safety Department	Opening of the Workshop and welcome address by FANR's Radiation Safety Department Director
09.15-10.00	Introduction to the Second National Workshop (FANR)	**Daniele Giuffrida,** FANR	Conclusions of the 2015 First National Workshop. Scope and purpose of the Second National Workshop.
10.00-10.30	Setting the scene: the UAE Legislation (FANR)	**Aayda Al Shehhi,** FANR Director of the Radiation Safety Department	The roles and responsibilities of Qualified Experts, Radiation Protection Officers and other Professionals in Radiation Protection, according to the UAE Legislation
10.30-11.00	*Coffee break*		
11.00-11.30	The EduTA Mission to the UAE (IAEA)	**Richard Paynter,** IAEA Expert, EduTA Mission Team Leader	The EduTA Mission to the UAE in February 2017: its conclusions, Recommendations and Suggestions (https://goo.gl/ozmuXp)
11.30-12.00	Follow-up to the EduTA Mission (FANR)	**Daniele Giuffrida,** FANR	Ongoing activities in the field of the UAE National Strategy in Education and Training in Radiation Protection in the UAE, as a follow-up to the EduTA Mission
12.30–13.15	*Break for Prayer*		
13.15–14.00	*Break for Lunch*		

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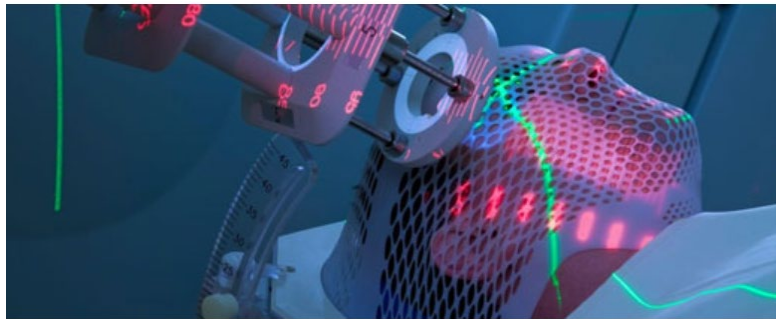

Creation of New University Degrees

New concentration in "Radiological Protection" within an already existing MEng in "Health, Safety and the Environment".

جامعة خليفة
Khalifa University

In the Physics Department, a new MSc in Medical Physics.

contained topics as internal and external dosimetry, management of occupational, emergency and existing exposure, biological effects.

clinical work in a hospital, and the full-extent corresponding residency programme, need to be completely set up and deployed, in order to close the circle and allow students to be fully qualified and operational in the job market.

Development of National Qualifications

FANR invited the National Qualifications Authority (NQA), to participate to the works of the WG, and started a strategic partnership with NQA.

At the end of 2014, NQA authorized FANR to setup another working group, named

"Recognized National Development Committee" (RNCD)

to develop National Qualifications for the five profession RP profiles:

1. Qualified Expert
2. Radiation Protection Officer
3. Medical Physicist
4. Exposed Worker
5. Emergency Worker

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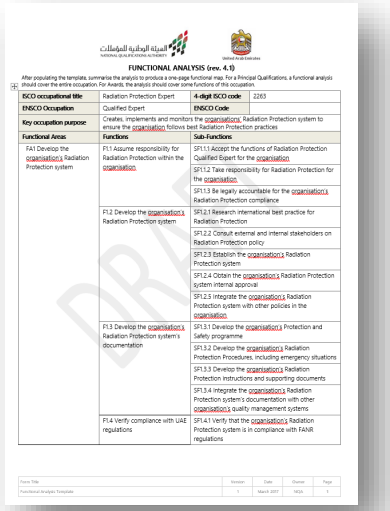
National Qualifications

Are based on National Qualification Unit Standards, a "formally approved set of learning outcomes developed to standards set by the developing industry bodies, which can be achieved by a learner".

they take the form of **'principal qualification' or 'award'.**

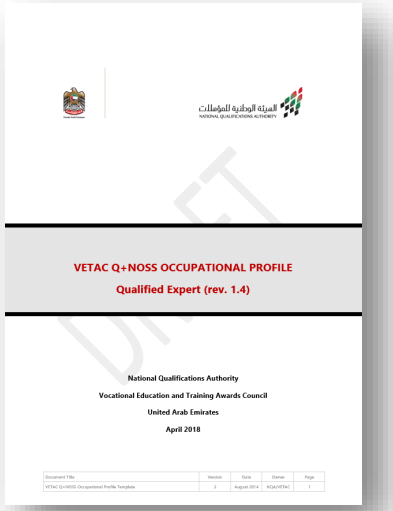
- Functional Analysis
- Occupational Profile
- National Occupational Standards



FUNCTIONAL ANALYSIS (rev. 4.1)

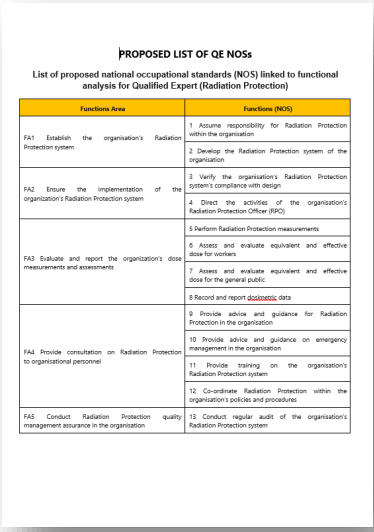
After populating the template, summarise the analysis to produce a one-page functional map. For a Principal Qualification, a functional analysis should cover the entire occupation. For Awards, the analysis should cover some functions of this occupation.

ISCO occupational title	Radiation Protection Expert	**4-digit ISCO code**	2263
ENSCO Occupation	Qualified Expert	**ENSCO Code**	
Key occupation purpose	Creates, implements and monitors the organisations' Radiation Protection system to ensure the organisation follows best Radiation Protection practices		
Functional Areas	**Functions**		**Sub-Functions**
FA1 Develop the organisation's Radiation Protection system	P1.1 Assume responsibility for Radiation Protection within the organisation	SP1.1.1 Accept the functions of Radiation Protection Qualified Expert for the organisation	
		SP1.1.2 Take responsibility for Radiation Protection for the organisation	
		SP1.1.3 Be legally accountable for the organisation's Radiation Protection compliance	
	P1.2 Develop the organisation's Radiation Protection system	SP1.2.1 Research international best practice for Radiation Protection	
		SP1.2.2 Consult external and internal stakeholders on Radiation Protection policy	
		SP1.2.3 Establish the organisation's Radiation Protection system	
		SP1.2.4 Obtain the organisation's Radiation Protection system internal approval	
		SP1.2.5 Integrate the organisation's Radiation Protection system with other policies in the organisation	
	P1.3 Develop the organisation's Radiation Protection system's documentation	SP1.3.1 Develop the organisation's Protection and Safety programme	
		SP1.3.2 Develop the organisation's Radiation Protection Procedures, including emergency situations	
		SP1.3.3 Develop the organisation's Radiation Protection instructions and supporting documents	
		SP1.3.4 Integrate the organisation's Radiation Protection system's documentation with other organisation's quality management systems	
	P1.4 Verify compliance with UAE regulations	SP1.4.1 Verify that the organisation's Radiation Protection system is in compliance with FANR regulations	



VETAC Q+NOSS OCCUPATIONAL PROFILE
Qualified Expert (rev. 1.4)

National Qualifications Authority
Vocational Education and Training Awards Council
United Arab Emirates
April 2018

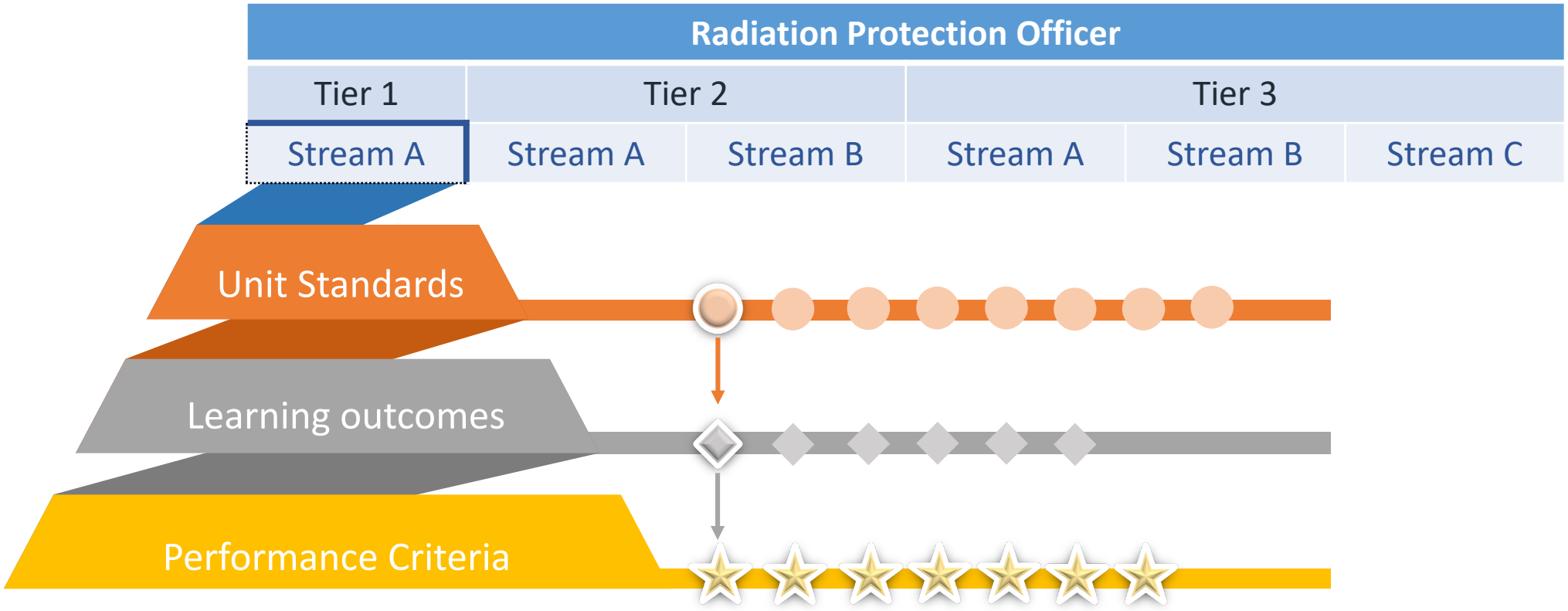


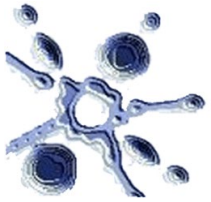
PROPOSED LIST OF QE NOSs

List of proposed national occupational standards (NOS) linked to functional analysis for Qualified Expert (Radiation Protection)

Functions Area	Functions (NOS)
FA1 Establish the organisation's Radiation Protection system	1 Assume responsibility for Radiation Protection within the organisation
	2 Develop the Radiation Protection system of the organisation
FA2 Ensure the implementation of the organization's Radiation Protection system	3 Verify the organisation's Radiation Protection system's compliance with design
	4 Direct the activities of the organization's Radiation Protection Officer (RPO)
FA3 Evaluate and report the organization's dose measurements and assessments	5 Perform Radiation Protection measurements
	6 Assess and evaluate equivalent and effective dose for workers
	7 Assess and evaluate equivalent and effective dose for the general public
	8 Record and report dosimetric data
FA4 Provide consultation on Radiation Protection to organisational personnel	9 Provide advice and guidance for Radiation Protection in the organisation
	10 Provide advice and guidance on emergency management in the organisation
	11 Provide training on the organisation's Radiation Protection system
	12 Co-ordinate Radiation Protection within the organisation's policies and procedures
FA5 Conduct Radiation Protection quality management assurance in the organisation	13 Conduct regular audit of the organisation's Radiation Protection system

National Qualifications Structure





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شكرا جزيلا!

Thank you!

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