

Requirements Recognition Expert Class 1 (Belgium)
Summary



Master after Master in Nuclear Engineering

BNEN SHARE OF TEACHING RESPONSIBILITIES

		ECTS	KU Leuven	UGent	VUB	UC Louvain	ULB	ULiège	Titular
		Compulsory modules	31						
S		Introduction to nuclear energy	3	3					Geert VAN DEN BRANDEN
RP		Introduction to nuclear physics and nuclear measurements	3				3		Nicolas PAULY
S		Nuclear materials	3	2				1	Marc SCIBETTA Rik-Wouter BOSCH Eric VAN WALLE
S		Nuclear fuel cycle	3					3	Kevin GOVERS Christophe BRUGGEMAN
RP		Radiation protection	3		3				Klaus BACHER
S		Nuclear thermal hydraulics	5			5			Yann BARTOSIEWICZ
S		Nuclear reactor theory	6	2	2	2			Geert VAN DEN BRANDEN Matthias VANDERHAEGEN Peter BAETEN
S		Safety of nuclear power plants	5		3		2		Matthias VANDERHAEGEN Pierre-Etienne LABEAU
		Elective modules (9 ECTS to be chosen from the list below)	9						
S		Advanced nuclear reactor physics and technology	3			3			Hamid AIT ABDERRAHIM
S		Advanced nuclear materials	3	2				1	Marc SCIBETTA Rik-Wouter BOSCH Eric VAN WALLE
RP		Advanced radiation protection radiation ecology	3		3				Klaus BACHER
S		Advanced courses of the nuclear fuel cycle	3					3	Kevin GOVERS Christophe BRUGGEMAN
RP		Nuclear and radiological risk governance	3		1	2			Fernand VERMEERSCH Greet MAENHOUT
		Advanced course elective topic	3		3				Peter BAETEN
		Master thesis	20						
		Total	60						

S = Safety

RP = Radiation Protection

The BNEN program and formal recognition as Expert Physical Control Class 1 (Belgium)

The full requirements to be recognized by FANC as a Radiation Protection Expert Class 1 (expert contrôle physique – deskundige in fysische controle) are detailed in the following documents of FANC. This document highlights the agreement of the BNEN program with the educational requirements for experts in class I.

FR:

<https://afcn.fgov.be/fr/system/files/2022-07-05-renseignements-standards-demande-initiale.pdf>

NL:

<https://fanc.fgov.be/nl/system/files/2022-07-05-standaard-voorwaarden-initiele-aanvraag.pdf>

Educational requirements:

- Pre-requisite: Master in engineering or exact sciences
- Radiation protection: **12 ECTS**
- Nuclear technology and nuclear safety:
 - Installations including nuclear reactors: **24 ECTS**
 - Installations without nuclear reactors: **18 ECTS** (e.g., working with critical material, fuel reprocessing, radioactive waste processing or disposal)

BNEN program (as indicated previous table):

- Master-after-master in nuclear engineering
- Radiation protection courses: $6 + 6^{\text{el}} = 12$ ECTS offered¹
- Nuclear technology and nuclear safety courses: $25 + 9^{\text{el}} = 34$ ECTS offered
- Master thesis: 20 ECTS depending on the subject possible for safety or radiation protection

Attention: in addition to educational requirements, other requirements are relevant as well, such as practical working experience in radiation protection and nuclear safety.

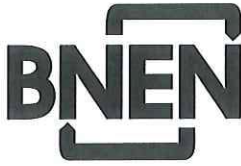
3 years of working experience is asked for experts Physical Control Class I in installations for which the recognition is asked, including 6 months performing tasks related to the function of expert in physical control.

A positive advice from the Scientific Council of FANC is required to obtain the recognition. FANC can impose minimum demands on additional education needs and practical working experience in radiation protection and nuclear safety, taking into account the characteristics of the installation.

Attachment: letter BNEN to FANC on the program and the thesis.

The topic was discussed and approved at the meetings of the Scientific Council for Ionizing Radiation at FANC in its meetings of 2013-06-20 & 2013-09-13.

¹ Superscript 'el' stands for elective course



Belgian Nuclear higher Education Network

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Your message from

your reference

our reference
BNEN-2013-007

Mol
2013-03-25

Dear Chairman
Dear Members of the Scientific Council of FANC

During the academic year 2011-2012, the Belgian interuniversity programme in Nuclear Engineering, BNEN, was formally audited by the Flemish Interuniversity Council (In Dutch: Vlaamse Interuniversitaire Raad – VLIR). In order to respond to the recommendations made by the visitation panel, the BNEN Steering Committee (SC) is investigating a reform of the current BNEN curriculum. The current proposal is annexed to this letter.

In its proposal, the BNEN SC wants to take into account the requirements for accreditation of **Class I Expert (Class I facilities – nuclear reactors)** upon graduating from the BNEN programme. To achieve this, we would like to propose to the Scientific Council that the credits of the master thesis (20 ECTS) can be counted for the accreditation, provided that the topic covers either 'Radioprotection' or 'Nuclear Safety' subjects.

In this case, a student graduating from the standard BNEN programme (60 ECTS) would also be recognised as Class I Expert.

We kindly ask if you could discuss this matter at the next meeting of the Scientific Council of FANC.

Sincerely yours

Prof. Peter Baeten
Chairman BNEN

cc: Jan Bens, director –general FANC



Belgian Nuclear higher Education Network

Proposed courses for the Belgian Interuniversity programme in Nuclear Engineering, BNEN – version March 2013

Compulsory modules (31 ECTS)

Nuclear Energy
Nuclear Physics & Measurements
Radioprotection
Nuclear Reactor Theory
Nuclear Thermal Hydraulics
Operation & Control / Reliability&Safety
Nuclear Fuel Cycle
Nuclear Materials

Proposed
ECTS

3 NS
3 RP
3 RP
6 NS
5 NS
5 NS
3 NS
3 NS

Elective topics (9 ECTS, to be chosen from the list below)

Advanced Nuclear Reactor Physics and Technology
Advanced Nuclear Materials
Advanced Radioprotection/Radioecology
Advanced topics Fuel cycle/dismantling/radiochemistry/MOX/Th
Transdisciplinary aspects of nuclear technology (societal, safeguards, legal, ..)
Advanced course elective topic

3 NS
3 NS
3 RP
3 NS
3 RP
3

Master Thesis (20 ECTS)

20 NS/NP

for accreditation as class I expert: Nuclear Safety (NS) 34
Radioprotection (RP) 12