

Membership Criteria for Expert Membership of the ICPM

Contents

Membership Criteria for Expert Membership of the ICPM	2
1. Education.....	2
2. Clinical Training.....	3
3. Advanced Experience and Professional Development (PD)	4
Applicants from the European Union, European Economic Area, and Third Countries	4
Translated Educational and Professional qualifications	4
Academic qualifications from overseas	4
Extract from The Physics Degree Graduate Skills Base and the Core of Physics, 2011	5
Undergraduate and Postgraduate (Masters) Qualification requirements:	6
References.....	6

Membership Criteria for Expert Membership of the ICPM

This document outlines the procedure and criteria for entry to become an ICPM Expert member. The ICPM was awarded National Registration Scheme (NRS) status by the European Federation of Organisations for Medical Physics (EFOMP) at the ECMP in August 2022. The acceptance of the ICPM onto the NRS register was evaluated under criteria as described in EFOMP Policy Statement 6.1, and in the guidelines on national schemes for Continuing Professional Development (PS 10.1), education and training (PS 12.1), and the role, responsibilities, and status of medical physicists and medical physics experts (PS 7.1 and PS 16).

The admission requirements for the ICPM to become an EFOMP-approved NRS programme place particular emphasis on the content of the associated education and training programmes. This educational stage is a critical component of the national registration scheme as outlined in EFOMP's Policy Statements 6.1 and 12.1. The ICPM's requirements for membership align with the requirements set out in the publications mentioned above.

1. Education

A Medical Physicist is a person, qualified with a university degree majoring in physics with specialised education and training in the concepts and techniques of applying physics to medicine and healthcare. In accordance with both the "European Guidelines on the Medical Physics Expert" (published as RP174) and EFOMP Policy Statement 12.1, the requirements for entry to the ICPM are:

1. The candidate must hold an Honours Bachelor's Degree in physics or an equivalent¹ closely related field with a strong emphasis on associated mathematics. This degree should be aligned with Level 8 of the National Framework of Qualifications (NFQ) in Ireland, equivalent to Level 6 in the European Qualifications Framework (EQF).
2. The candidate must also have obtained a Master's Degree with a high level of physics and mathematics content. This degree should include the educational components of the core Knowledge, Skills, and Competencies (KSC)² required in medical physics, as well as the specialty-specific KSC corresponding to the candidate's clinical training. This degree must meet the Level 9 standard in the NFQ, which corresponds to Level 7 in the EQF.

The first phase of the education program is completion of a bachelor's degree in physics or an equivalent degree in a relevant physical or engineering science subject¹. Within the European Credit Transfer and Accumulation System² (ECTS) a 'first cycle' (or bachelor's) degree consists of either 180 or 240 ECTS credits. In the National Framework of Qualifications⁴ a Bachelor's Degree is 240 ECTS. EFOMP/ESTRO6 provides further clarity on the educational requirements for Medical Physics Expert setting these the ECTS at 240, of which there should be a minimum of 180 ECTS in fundamental physics and mathematics⁵.

¹"This will make it possible for graduates from other Level 6 programmes which include a high level of physics and mathematics (e.g., engineering, biophysics) to enter the field" EFOMP PS 12.1

² As outlined in RP 174 and EFOMP PS 12.1

Based on RP 174³ the fundamental education level for medical physics professionals is a European Qualification Framework level 6 (NFQ level 8 Bachelor's, 240 ECTS⁴) in physics and associated mathematics or equivalent. An equivalent qualification is defined as one in which there is a high level of physics and mathematics, and makes it possible for graduates of other physical sciences (e.g., engineering, biophysics), including theory, practical and research project elements, to enter the field of Medical Physics. The Institute of Physics Core Curriculum⁵ provides guidance on the curriculum of fundamental physics and maths.

Entry level to the profession of Medical Physics has been set at a minimum of EQF Level 7 (NQF Level 9) in Medical Physics³. NQF Level 9 (Master's, 90 ECTS) specialises in the key skills and competences specific to the speciality of Medical Physics, and does not replace or supersede the fundamental knowledge and skills gained at NQF Level 8. Equivalent qualifications (e.g., Level 9 or 10 Level) with a high level of physics and maths may need additional educational components of the core RP 174 Key Skills and Competencies specific to the medical physics speciality.

2. Clinical Training

The clinical training requirements for MPE recognition include:

- Structured Clinical Training: Successful completion of an accredited, structured Medical Physics Clinical Training Scheme lasting a minimum of two years full-time within a healthcare institution.
or
- Equivalent Clinical Training: Completion of equivalent clinical training under the supervision and direction of registered Medical Physics Experts, also lasting at least two years full-time in a clinical environment. This training must involve hands-on experience and the application of medical physics skills under supervision.

This training must encompass the core skills (KSC) for both general medical physics and the chosen specialty. It must provide:

- i. Practical experience in a clinically relevant setting.
- ii. Continuous supervision to ensure proficiency in skills and competencies.
- iii. Feedback and support for the trainee to attain clinical certification.
- iv. Knowledge and application of relevant EU and Irish legislation.

To prove the equivalence of training, applicants must submit sufficient documentary evidence, including professional references from at least two referees who are registered with the ICPM or listed on the Register.

Examples of evidence might include international exams, technical assessments, in-house evaluations, and reports on professional competencies.

3. Advanced Experience and Professional Development (PD)

To meet the requirements for advanced experience and professional development, an applicant must have achieved a Level 10 qualification in the NFQ, equivalent to Level 8 in the EQF, in their specific medical physics specialty. This requirement can be met by:

- a. **Minimum of Three Years of Experience:** At least three years of advanced experience and professional development after completing clinical training, with demonstrated competencies and responsibility for patient care.
- or
- b. **Two Years of Experience with Additional Certification:** At least two years of advanced experience and professional development following clinical training, along with the successful attainment of the European Attestation Certificate Medical Physics Expert (EACMPE) awarded by EFOMP's European Examinations Board (EEB).

Applicants must also fulfil Continuous Professional Development (CPD). Documentary evidence of professional development must be submitted during the application process.

Applicants from the European Union, European Economic Area, and Third Countries

Applicants whose clinical training and advanced experience did not include knowledge of Irish legislation and regulatory frameworks must provide additional documentary evidence demonstrating their understanding of these areas. This evidence may include formal training modules or professional development activities specific to the Irish regulatory environment. Such documentation is required for ICPM membership.

It is expected that an applicant who has been awarded MPE status through their country's MPE Registration Scheme will require a 6-months adaption period of experience within the Irish jurisdiction before application. The applicant must provide evidence that their countries MPE scheme aligns with RP 174 (e.g. NRS approved by EFOMP).

Applicants from other areas are expected to have a 1-year adaption period of experience within the Irish jurisdiction before application.

VISA requirements are the responsibility of the applicant. The MPE Register is reserved for MPEs working in Ireland or those who have worked in Ireland and whose registration is still valid.

Translated Educational and Professional qualifications

Only certified translations should be accepted.

Only certified originals of academic degrees/ professional qualifications will be accepted.

Academic qualifications from overseas

These can be compared to those in Ireland using the NARIC database.

<https://qsearch.qqi.ie/WebPart/Search?searchtype=recognitions>

Where relevant, proof of proficiency in the English language must be provided by the applicant.

Extract from The Physics Degree Graduate Skills Base and the Core of Physics, 2011

- Mathematics for Physicists
- Trigonometric and hyperbolic functions; complex numbers
- Series expansions, limits and convergence
- Calculus to the level of multiple integrals; solution of linear ordinary and partial differential equations
- Three-dimensional trigonometry
- Vectors to the level of div, grad and curl; divergence theorem and Stokes' theorem
- Matrices to the level of eigenvalues and eigenvectors
- Fourier series and transforms including the convolution theorem
- Probability distributions
- Fundamental Physics
- Mechanics and Relativity
- Classical mechanics
- Special relativity
- Quantum Physics
- Condensed Matter Physics
- Oscillations and Waves
- Electromagnetism
- Optics
- Thermodynamics and Statistical Physics

Undergraduate and Postgraduate (Masters) Qualification requirements:

1. IOP Degree accreditation framework 2022
<https://www.iop.org/sites/default/files/2022-09/IOP-Degree-Accreditation-Framework-July-2022.pdf>
2. IOP The Physics degree (2022)
<https://www.iop.org/sites/default/files/2022-09/IOP-Degree-Accreditation-Framework-July-2022.pdf>
Note 1: includes BEng.
Note 2: In Ireland, a Physics undergraduate degree is typically 240 ECTS, while in the UK it is 180 ECTS.
3. IOP List of Accredited courses, UK and Ireland (2023)
<https://www.iop.org/sites/default/files/2023-09/iop-register-of-accredited-courses-issue-39-september-2023.pdf>

References

4. IOMP Policy Statement No. 2 Basic Requirements for Education and Training of Medical Physicists
IOMP Working Group on Policy Statement No. 21, 2010
[IOMP Policy Statement No](#)
5. European Higher Education Area, ECTS Users' Guide 2015
[ECTS User's Guide 2015 \(eha.info\)](#)
6. European Guidelines on Medical Physics Expert Energy Protection Radiation N° 174 European
Guidelines on Medical Physics Expert, 2014
[EUROPEAN COMMISSION \(efomp.org\)](#)
7. The National Framework of Qualifications, Quality and Qualifications Ireland
[National Framework of Qualifications | Quality and Qualifications Ireland \(qqi.ie\)](#)
8. Institute of Physics. The Physics Degree Graduate Skills Base and the Core of Physics, 2011
[the-physics-degree.pdf \(iop.org\)](#)
9. EFOMP / ESTRO Core Curriculum for Medical Physics Experts in Radiotherapy 3rd Edition
[Radiotherapy_cor_cc2022.pdf \(efomp.org\)](#)
10. EFOMP - Core curriculum for Medical Physicists in Radiology (2011)
https://www.efomp.org/uploads/63f9aaa9-ecf8-41f3-a375-c25e852f9512/CC_radiology_physics_JUN_%202011.pdf
11. EFOMP - Curriculum for education and training of Medical Physicists in Nuclear Medicine (2013)
https://www.efomp.org/uploads/7975d50c-ec2c-48a1-807f-266c43aa768e/NM_curriculum.pdf