

AAPM 2017; 30 July-4 August, 59th Annual meeting Denver



EUTEMPE-NETWORK: HIGH LEVEL COURSES FOR TRAINING OF MEDICAL PHYSICISTS IN EUROPE

Dr V. Tsapaki

EUTEMPE NETWORK SECRETARY GENERAL

virginia@otenet.gr

CONFLICT OF INTEREST

There is **no** conflict of interest

OBJECTIVES

- To learn about how to become a Medical Physicist and a Medical Physics Expert in Europe.
- To learn about EUTEMPE NETWORK.
- To find out more about the best centers for unique learning in diagnostic radiology physics in Europe.
- To describe the advantages of combined e-learning and interactive programs.
- To describe methods of achieving excellence in advanced medical physics training.

Year: 1689 CE

CURRENT FACTS

- The European Basic Safety Standards define the term Medical Physics Expert (MPE).
- The MPE is an individual that has the knowledge, training and experience to act or give advice on matters relating to radiation physics applied to medical exposure at the highest level possible (called EQF level 8).

RESPONSIBILITIES OF THE MPE (ARTICLE 85)

- Within the health care environment, the medical physics expert shall, as appropriate, act or give specialist advice on matters relating to radiation physics as applied to medical exposure.
- Depending on the medical radiological practice, the **medical physics expert** shall take responsibility for dosimetry, including physical measurements for evaluation of the dose delivered to the patient, give advice on medical radiological equipment, and contribute in particular to the following:
 - optimization of the radiation protection of patients and other individuals subjected to medical exposure, including the application and use of diagnostic reference levels;
 - the definition and performance of quality assurance of the medical radiological equipment;
 - the preparation of technical specifications for medical radiological equipment and installation design;
 - the surveillance of the medical radiological installations with regard to radiation protection
 - the selection of equipment required to perform radiation protection measurements
 - the training of practitioners and other staff in relevant aspects of radiation protection.

MPE project (tren/h4/167-2009) has distinguished between 3 levels of medical physics education and training:

1. The level of the graduate with a Master's degree in Medical Physics or equivalent,
2. The Medical Physicist level in one Specialty area of medical physics after having followed two years of training in the particular Specialty of medical physics,
3. The Medical Physics Expert level (MPE) in a given Specialty (after two additional years of advanced training and practice) in which knowledge-skills-competences are developed to the highest level possible i.e., EQF level 8

CHALLENGES AND GAPS FOR BECOMING AN MPE

- There was no educational platform generally available in the EC member States.
- There was no specific European initiative in this area.
- There are financial restrictions at a national level to develop MPEs.
- There is lack of specialized academic staff.
- There are financial restrictions for physicists due to their reduced budget.
- Medical physicists with young children have restrictions in becoming MPE due to time, work and financial restrictions.

It is very unlikely that a single European academic centre, or even a network of local academic centres, can deliver all required topics at EQF level 8.

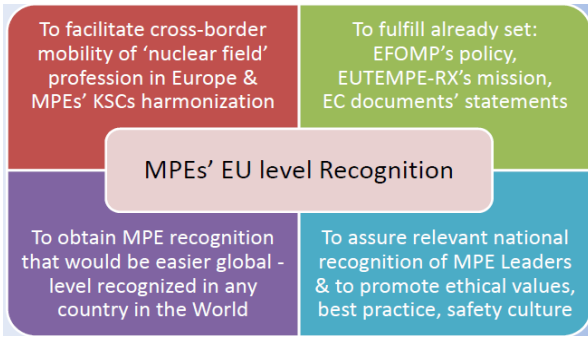
THE SOLUTION IS: EUTEMPE NETWORK



European Training & Education to become Medical Physics Expert in radiology



- Borderless mobility and lifelong learning:
- Gender equality
- Special attention to the assessment of the learning outcomes (at EQF level 8)
- Active involvement of future employers: industry, hospitals, regulatory authorities
- To set up a multicampus Education combining online with face-to-face learning
- To serve as a model for harmonised courses across Europe and get accredited by EBAMP (European Board for Accreditation in Medical Physics)





eutempe-net.eu

eutempe-net.eu

European Network for Training and Education of Medical Physics Experts

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Become an expert in Diagnostic and Interventional Radiology Physics today! Boost your career now!

MPE01: Leadership in Medical Physics: Development of the profession and the challenges for the MPE (D&IR)
Third edition will be available in 2018!
Apply Now >

6-10 February 2017
Prague, Czech Republic

On our agenda

- MPE07: Optimisation of X-ray imaging using standard and innovative techniques
High time to register!
- MPE04: Innovation & Advanced X-ray physics for imaging devices in diagnostic and interventional radiology
(Proposed to June 2018)
- MPE06: The development of advanced QA protocols for testing radiological devices
- MPE02: Radiation biology for medical physicists in radiotherapy

Course content driven by the 'European Guidelines on the Medical Physics Expert'
Dedicated EGF level II specialist courses delivered by area experts within a European network of centres of excellence

www.eutempe-nubourses/mod/page/view.php?id=334

Module 1: Leadership in Medical Physics: Development of the profession and the challenges for the MPE (D&IR)

Project coordinator, module leaders and the module teaching team

Project coordinator: **BEATRIZ LARREA DIZ**

Module leaders: **VERÓNICA GARCÍA**, **ARACELI DÍEZ**, **TRINIDAD GARCÍA**

Project coordinator: **BEATRIZ LARREA DIZ** (Coordinator, MPE, D&IR)

Module leaders: **VERÓNICA GARCÍA** (Coordinator, MPE, D&IR), **ARACELI DÍEZ** (Coordinator, MPE, D&IR), **TRINIDAD GARCÍA** (Coordinator, MPE, D&IR)

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EUTEMPE MODULE MPE01

LEADERSHIP IN MEDICAL PHYSICS: DEVELOPMENT OF THE PROFESSION AND THE CHALLENGES FOR THE MPE (D&IR)

MEDICAL PHYSICS EXPERTS
Driving Technology to Advance Healthcare
Proactively Protecting Patients

SERVICE	RESEARCH
LEADERSHIP	
MISSION	VISION

A comprehensive yet concise **mini-MBA for future lead Medical Physicists** in Diagnostic and Interventional Radiology

Leadership in Medical Physics: Development of the profession and the challenges for the MPE (D&IR)

Created on the basis of the EUTEMPE MPE01

A comprehensive mini-MBA for Medical Physicists in Diagnostic & Interventional Radiology

Application deadline: 30 October 2017

Start date: 01 November 2017

Duration: 12 months

Location: Online

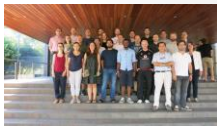
Language: English

Cost: Free

Registration: Free

Contact: info@eutempe-fa.eu

MODULE 3:
MONTE CARLO SIMULATIONS OF X-RAY IMAGING AND DOSIMETRY



The course aims at providing MPE with the theoretical and especially, practical abilities required to efficiently use the general purpose Monte Carlo code PENELOPE/penEasy to simulate x-ray imaging problems and their dosimetry. The coupling between ionizing radiation and light, or electron-hole pairs, in conventional x-ray digital detectors will also be addressed in the context of the MANTIS code.

ON LINE VERSUS ON SITE PHASE

- The online phase is split in 2 parts, one before face to face phase and another after.
- The pre-f2f phase, available online at the platform provided by EUTEMPE, will be based on preparatory reading material and on the installation of and familiarization with auxiliary software used during the f2f part. The post-f2f phase will be based on forums to discuss advanced exercises and further issues on the use of the simulation codes.

MODULE 5
PHYSICAL AND VIRTUAL ANTHROPOMORPHIC PHANTOMS FOR IMAGE QUALITY AND PATIENT DOSE OPTIMIZATION



The module aims to familiarize participants with the role of the physical and virtual anthropomorphic phantoms and the possibility of performing virtual (phantom based) clinical trials using existing and new Diagnostic and Interventional Radiology (D&IR) technologies.

MODULE 5

PHYSICAL AND VIRTUAL ANTHROPOMORPHIC PHANTOMS FOR IMAGE QUALITY AND PATIENT DOSE OPTIMIZATION



- Participants are introduced to different existing types of anthropomorphic phantoms, used in clinical trials and will be encouraged to develop skills for the design and evaluation of anthropomorphic phantoms, as well as design, manage, implement and evaluate virtual clinical studies with such phantoms and discuss and interpret the results of the virtual studies.

MPE06

(still receiving applications, on site November 2017) THE DEVELOPMENT OF ADVANCED QA PROTOCOLS FOR TESTING RADIOLOGICAL DEVICES



<https://www.researchgate.net/project/EUTEMPE-06-training-of-medical-physics-experts-in-radiology>

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EUTEMPE-RX training of medical physics experts in radiology

Alister MacKenzie | Hilde Bosmans | Carmel J. Creane | Show all 22 collaborators

Goal: www.eutempe-net.eu. We are a group of partners with a track record in teaching and research in Medical Physics applied to Diagnostic and Interventional Radiology. We have created a network of centres of excellence to deliver dedicated teaching and training at ECR level 8 for Medical Physicists who are aspiring to Medical Physics Expert status in Diagnostic and Interventional Radiology. The project is led by Prof. Hilde Bosmans, Leuven, Belgium.

Methods: Science Education, e Teaching, training, courses

Date: 1 August 2013

[View details](#)

Project log | **References (12)** | Questions | **Add research** | **All updates**

Your collaborator's update is scheduled for next month

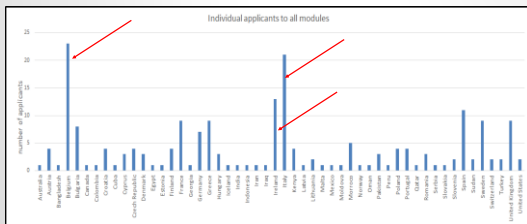
Assigned to: Hilde Bosmans

Add update now | [Refresh](#) | [Reschedule](#)

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GEOGRAPHIC DISTRIBUTION OF APPLICANTS



PLACE OF OCCUPATION OF PARTICIPANTS



EUTE MPE •RX

- EUTEMPE-RX is **the best E&T course/training** for MP in D&IR that I have ever attended,
- EUTEMPE-RX provides KSC for MPE in D&IR that can **contribute to better patient care** in Poland and Europe,
- EUTEMPE-RX provides a platform that can be used for **improvement of existing QA systems in D&IR** according to new BSS requirements – NETWORKING!,
- There are many ways to become MPE Leader or MPE recognized on EU-level, although among them **recognition based on EUTEMPE-RX modules' assessments should be considered!**

A. Kuchcińska, 2.XI.2016 Athens, Greece – 1st European Congress of Medical Physics "Connecting Medical Physicists in Europe and Beyond"

BENEFITS OF EUTEMPE COURSES TOWARDS MEDICAL PHYSICISTS

- Online courses enable professionals with family lives to participate
- Official, harmonized certification
- Students can benefit from the best resources in Europe
- All operating staff, users, patients and peripheral public benefit from increased safety levels and controlled applications doses.

CONCLUSIONS

- Scientific and academic, state of the art knowledge base.
- Continuously improved through ongoing research and "teach and learn" approach across Europe.
- No in-kind competition.
- Web-based, on line availability.
- Towards a European standard.
- Certification protocol reflects level of education for students and trainees.
- Focuses in on safety of users, operating staff as well as patients and peripheral subjects.
- Combines and leverages medical and industrial experiences and knowledge.

